Textile World

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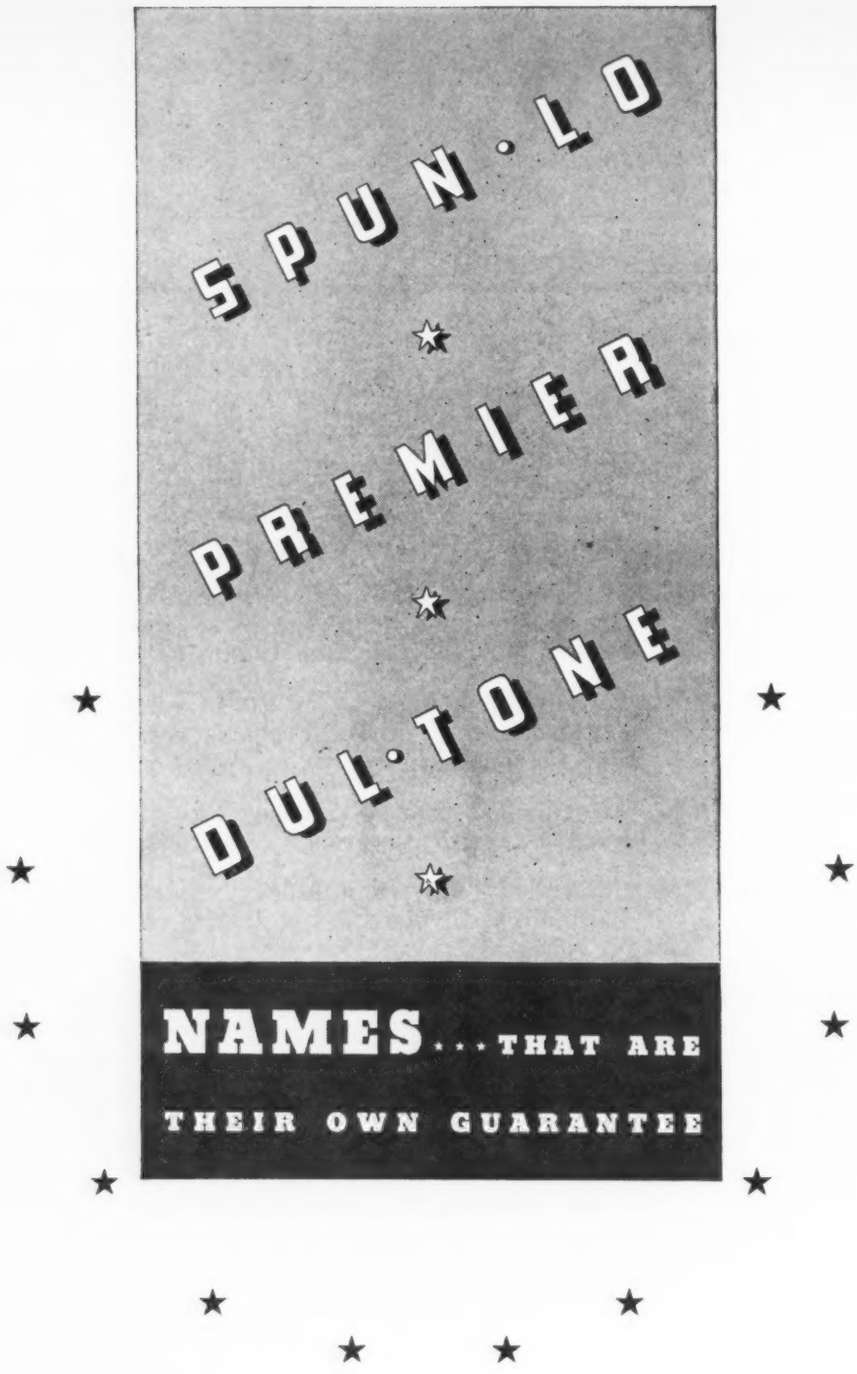

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INDUSTRIAL RAYON CORPORATION

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Textile World

July, 1934

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Editor: DOUGLAS G. WOOLF

"We Know What We Like"

BELIEVE it or not, industrial art is a highly controversial subject. Get two industrial designers together and you may expect as pretty a fight as if you put a labor agitator and an old-school manufacturer, or a free-trader and a high-protectionist, in the same cage.

We sensed this spirit of conflict at a recent luncheon meeting of the Fashion Group. The three speakers, all designers, represented what was called the ten-year-old machine-age of industrial art. And they didn't agree at all. Unfortunately, since they were all three perfect gentlemen, and/or since the audience was 99-44/100% feminine, the fight barely got started.

Just as an example, one of the speakers—Eugene Schoen—declared that the industrial designer should strive to impart the old spirit of craftsmanship to the man-at-the-machine, instead of allowing the machine to make of workmen mechanistic robots. The next speaker—Walter Dorwin Teague—quickly retorted that craftsmanship has no place and no opportunity in machine production. Designers must so design that ten thousand units, or ten million units, will be right when finished, he said. . . . Much as we hate to admit it, we are afraid Mr. Teague is right.

▼

But the paramount issue in all such discussions of industrial art, in our opinion, is the extent to which designers should strike out along new lines, or should profit by the heritage of the art of the ages.

We had this very much in mind when we wandered around the Industrial Arts Exposition held recently under the auspices of the National Alliance of Art and Industry. As we stated in these columns at the time, that exposition was a demonstration of the fact that there *is* art in industry now.

But much that was shown there had novelty as its chief characteristic. And too often that quality in itself did not contribute beauty. Change alone is not necessarily creativeness. As we examined some of the comparative exhibits of the same products "before" and "after" receiving the attention of a designer, we felt that in many cases, if the "before" and "after" signs had been transposed, there would have been just as many "Oh's!" and "Ah's!" from the visitors.

Coming back to the Fashion Group luncheon, the third speaker—Henry Dreyfuss—complained that, as moderns, industrial designers have not a sufficient understanding of what the antique has to offer. "Not that I would use Grecian urns for pickle jars, but because I am convinced the Grecian urn may provide the inspiration for a proper pickle jar, do I say this," he declared. That, of course, is what Richard Bach, of the Metropolitan Museum of Art, has been preaching for years.

▼

But what has all this to do with textile manufacturers?

Well, in the first place, the textile industry occupied a very important place in the exposition referred to above: not only in displays of new textile designs, but in new packages for textile products, and in new promotional aids for textile merchandising.

In the second place, design is steadily becoming a dollars-and-cents item to an increasingly large group of textile manufacturers. Not so many years ago, the industry as a whole complacently believed that style interested only the relatively small number of so-called styled-goods producers. Today, style is invading thousands of items, hitherto stereotyped in appearance.

Not that, as we indicated before, merely a change is a step in the right direction. But here is the point: If, as all must agree by now, style can influence sales, and if, as we believe, it is just as economical to secure beauty as ugliness in style, it behooves textile manufacturers to expose themselves to sources of inspiration. Some few do, but by and large there is not the utilization of such institutions as, say, the Metropolitan Museum of Art or the Cooper Union Museum for the Arts of Decoration—to mention only two—that there should be.

And when we say manufacturers, we mean manufacturers. Their designers, undoubtedly, use these resources. But this which we have called a dollars-and-cents item demands executive attention. Designers need the sympathetic understanding and support of their chiefs, just as do chemists and engineers and department-heads.

. . . . We find we are getting didactic on a subject which, we admitted before, is dynamite. So we prudently stop here.

In any event, we can fall back on the age-old but ever-new alibi that we know nothing about art, but know what we like.

What a Year!

By Jack Card

DIARY OF A CODIFIED COTTON MANUFACTURER. . . . .IS IT A FAKE?

JACK CARD claims that the attached material represents extracts from a diary which he, as a cotton manufacturer, kept a few months before, and during the first year of, the Cotton Textile Code. For the protection of our readers, we are compelled to state that we know positively Jack Card has never been, and is not now, a cotton manufacturer. That fact, as our readers can imagine, arouses in us a faint suspicion as to the authenticity of the document—Editor.

March, 1933: Well, I guess it's all over. Banks closed, no business, country going to pot. I've been predicting this for years. We had a litle flurry in cotton goods prices and sales during the "banking holiday," but it didn't last. I know when I'm licked.

April, 1933: Worse—and more of it. The farm bill—nicknamed the Domestic Allotment Plan for short—is sure to pass. I don't know what it's all about, but I'm against it. The Black 30-hour bill, which was supposed to be dead, has come to life again and they say it has a good chance. If the Government wants my shirt, it can have it without all this unnecessary trouble. There's only one way to get out of this mess—and that's to let Nature take its course. . . . Oh, how I wish Herbert Hoover were back!

May, 1933: Whew, that was a narrow escape! Instead of the Black 30-hour bill we're going to have a "partnership" between government and industry, called the National Industrial Recovery Act. I don't know what it's all about, but I'm for it. Anything is better than nothing. President Roosevelt isn't so bad, for a Democrat. . . . I see George Sloan told the President the cotton industry would be asked to operate two shifts of 40 hrs. per week each. We-l-l-l, maybe that's alright. Anyway, we've had these gentlemen's agreements before; it doesn't do to take them too seriously. . . . But, say, business is rushing. It's just a spurt and won't last, but it's hot stuff.

June, 1933: Well, we're going to have a code . . . and a processing tax. Anything the President says is alright with me. He has saved the country. He ranks with Washington and Lincoln. A great man always seems to arise in an emergency. What gets me most of all is these people who think we ought to recover by natural processes. It takes courageous and revolutionary measures such as the President has started, to get us out of this mess. . . . Of course, I don't think so much of the processing tax, but maybe they won't impose it after all. . . . And, boy, am I busy! Haven't seen anything like this in years.

July, 1933: The cotton textile code is approved—and we're enlisted in this war on depression side by side with our great President, Franklin D. Roosevelt. . . . I'm a little afraid our costs are going to go up too fast. . . . Too busy to write any more just now.

August, 1933: Just imagine! A 4.2c. processing tax on cotton. Why, the consumer won't stand for it. Artificial attempts to boost prices are bound to fail. History teaches us that. . . . And cotton goods sales are falling off. Prices are soft, too. It's the result of a little too much government in business, I'm afraid.

September, 1933: I don't know just what to think. Sales are still falling off. Of course, we're way ahead of last year, but we've dropped from where we were in June and July. I don't like it a bit.

October, 1933: I guess it's not fair to the Administration to blame it for *all* the decline in business from the June-July level. Part of the boom last spring was due to buyers' anticipation of code and processing tax effects. But I feel more and more keenly that business ought to be let alone.

November, 1933: I heard an economist speak the other day, and he said that world recovery was under way last summer anyway—and that we've had this improvement in business in spite of, not because of, the Administration. I hadn't thought of that. Some one in the audience said: "Well, how about last March?" He had an answer for that one; he said the bank crisis was due merely to the political upheaval. He sounded like a pretty smart fellow, and I guess he knew what he was talking about.

December, 1933: Well's that's that! What a year! . . . Just now, we're curtailed 25% all through the industry—and ought to be more so. . . . Looks as if I made a nice little profit this year, though, compared with a heavy loss last year. You can't keep a good man down, processing tax or no processing tax.

January, 1934: I've just caught my breath; the year certainly has started off fine. Business is O.K. . . . I have it on stragt inside dope that General Johnson is going to resign. I guess that means the NRA is cracking up, alright.

February, 1934: If only the Administration would realize that business has had enough shocks during the last year, and would pull in its horns, we might go places. American industry, with its traditional courage, has fought an uphill fight only to be threatened at every step by a new move from Washington. . . . I told the boys at the club today how I felt about this, and I found they all agreed with me.

March, 1934: I agree with Ogden Mills. It's about time we realized that our form of constitutional government is threatened by the New Deal. . . . Just got our final 1933 financial statement: net profit of $214,000, against net loss of $71,000 in 1932 and loss of $157,000 in 1931. Shows what good management will do!

April, 1934: There's a lot of talk about things being pretty bad this summer. It wouldn't surprise me at all. I've been warning against these new-fangled notions, but it's no use. . . . Sales are falling off, too. Of course, we're running full and have been right along, but things don't look so good.

May, 1934: Well, the slump's here—and *is* it a slump! And in the middle of it, McMahon threatens to pull a strike. He must be trying to be funny or something. I hope they walk out of my mill first of all.

June, 1934: Here we are curtailing 25% again. And for three months this time. . . . Well, they settled McMahon's "strike." Too bad! I had hopes they'd let him go through with it. He says the settlement means a "new day" for textile workers. I wonder what he'd say if he really did get some concessions!

July, 1934: Just a year since they plastered this cotton textile code on us. Can't help reminiscing a bit. We've been running pretty near full most of the year. My workers have had more employment, and more pay, than during any year in a long, long time. They seem pretty happy about things, too. I made a profit for the first time in years. . . . I understand General Johnson said the cotton textile code is the best administered and most effective code in the NRA. That shows how foolish it is for a man to talk about a business when he's not in it. How can he know what we've suffered? If they don't leave us alone and let us run our own businesses, the country will be ruined. . . . Well, anyway I'm going to get away from it all for a while; I start on a round-the-world cruise tonight.

The Editor Says:

FIFTEEN MONTHS can be a long, long time.

This long, long thought came to us on our last trip to Washington when we remembered that exactly a year and a quarter had elapsed since our first visit to that city under the "New Deal."

It might be 15 years—or 15 centuries. Everything back of March 4, 1933, seems hazy and unreal today. Everything that has happened since March 4, 1933, seems to have been going on indefinitely. It is difficult to remember the days when we didn't discuss NRA, AAA, codes, processing taxes, et al. All of these things have taken possession of our national life in a way that belies their youth.

❖

Still Alive, Anyway

WHAT of these 15 months?

When we came back from that first pilgrimage, we wrote:

"It's a good crowd. The atmosphere is inspiring. Things are being done. The 'experimental' attitude does not frighten us. Mistakes will be made but, we believe, they will be corrected as they become apparent. . . . Truly, it's a national Government just now. And we are confident the national interest will be served."

Believe it or not, we would not change that statement much today. And this, in spite of the family row we found in Washington this time, in contrast to the honeymoon of 15 months ago. This was to be expected. We shall not diagnose it at length here. It has been exposed on the editorial pages of all newspapers, on both sides of the fence.

The main point at issue in connection with it is, how much of the criticism of the New Deal is due to difference of opinion, and how much to political affiliation? In our opinion, the former type has been in the ascendency during most of the 15 months, but the latter type is gaining rapidly now. Party lines are forming again. Life-long Republicans who have endorsed the New Deal are feeling habit tugging at their coat-tails. This is not true as a blanket statement, but it *is* true in many cases.

This, too, is natural enough. Altogether, we can't get too excited over the noise of battle one hears in Washington. In fact, if we didn't hear it, we'd worry more. It would indicate that the country had died during the depression.

❖

On the Other Hand

DON'T misunderstand us. We do not mean to imply that everything is fine and dandy in the Capital. It isn't. The organization problems facing the Administration are staggering. Let us illustrate by a specific case:

In a year, the NRA has grown from a handful of crusaders to an army of employees. There are some 2,500 on its rolls in Washington, to say nothing of the thousands connected with State boards, and what have you. The Department of Commerce Building, the inhabitants of which rattled around a year ago, is now bulging. Space is being sought elsewhere. For instance, the Textile Division of the Bureau of Foreign and Domestic Commerce has been exiled to the Investment Building at 15th and K Streets, while the Textile Division of the NRA is now quartered in the City Club Building, 1320 G Street. Good for the taxicab drivers, but tough on everyone else.

Well, as we have watched the NRA expand during the last year, but particularly during the last six months, we have constantly expected the development of a type of organization compatible with its size. Our contacts with it indicate that this has not been achieved.

To put it bluntly, there seems now to be the need for some one who has the same genius for organization that General Johnson has for electrification. The job of getting a machine to run smoothly is always a more thankless task than that of getting it started in the first place—but it has to be done.

❖

Sound at the Core

THIS organization problem should surprise no one. The very magnitude of the depression and of the task imposed upon Government explains it.

And, as we said at the start, we still have entire confidence in the Administration and complete expectation that the national interest is being served by it.

This confidence comes primarily from our belief in the utter sincerity of the Administration. We know that this statement will stir up the strongest kind of denial among the "antis." However, every contact and every experience that we have had in Washington have indicated to us that the prime consideration is national recovery, and that politics and self-interest are subordinated to it. (Undoubtedly hundreds of incidents could be cited in denial of this, but we are talking of the broad purpose of the Administration, not of the acts of individuals.) So long as that purpose is adhered to, we have no fear of the eventual outcome.

P. S.—Lest the above be construed as Democratic propaganda, we might remind our readers that we voted for Herbert Hoover.

❖

That Way Lies Sanity

SOMEWHERE in the general direction pointed by Dr. John J. Madigan in his report "Managing Cloth Inventories in the Cotton Textile Industry" lies the real hope of that industry. Permanent solution of its economic problems does not involve recurring periods of organized curtailment. That is merely a necessary remedy during emergence from crises. For the broad future, however, constant self-regulation of each manufacturer's own position is the only answer.

This raises a vital question. Dr. Madigan's report emphasizes the necessity of "operating on order only." That rule, of course, is the answer over a period of time, but if it is adopted too literally, all hope of smoothing out production curves and of reducing jolts to employees is sacrificed. The report recognizes this by high-lighting the importance of laying out tentative schedules of production in advance.

This whole subject is an old hobby of ours. We have hammered at it again and again in these columns. Eventually, we believe, budgetary control of production and inventories will be the rule, not the exception.

That way lies sanity.

Congress Passes

BUT LEAVES A FEW ODD QUESTIONS IN ITS WAKE

By Paul Wooton
Washington Correspondent, TEXTILE WORLD

PREVAILING opinion is that few really important reciprocal tariff agreements will be negotiated. There is a minority, however, that does not share that point of view. Certainly it is not shared by members of the executive committee on commercial policy, the informal interdepartmental committee which has been dealing with this matter.

There is no doubt that the main objective of the administration is to increase agricultural exports and to increase industrial imports, but this does not mean that full advantage will not be taken of any opportunity to negotiate an agreement that will benefit an industrial product. There are some who think that agreements involving the export of industrial goods will be the really important developments under the new law, due to the fact that we are not low-cost producers of most agricultural products, but we are low-cost producers of many industrial products.

Apparently the plan is to take full advantage of our genius for mass production and the fact that we have a large domestic market which makes mass production possible in many lines. While no official announcements have been made, it is known definitely that active consideration is being given for expanding our exports of that type of industrial product. It also is known that Mr. Peek is anxious to have producers and exporters acquaint him with the difficulties they are finding in selling their products abroad, particularly in cases where the American product would have an advantage were it not for artificial restrictions.

In very guarded comment, officials have mentioned incidentally that there should be an opportunity to export American hosiery and corsets, as examples of mass production products combined with attractive styling. It is believed that this combination of mass production and good styling runs through a large variety of medium fine goods made in the United States. At the same time, it is realized that perhaps the most important negotiations involving textiles will deal with cotton piece goods.

* * *

The Bankhead Act, by granting authority to the Secretary of Agriculture to use $500,000 of processing tax money for the study of new uses of cotton, insures a reopening of that research, probably on the basis of a five-year program.

Appropriations for new-use research in the past have been meager and without promise that the appropriation would be continued. It was thus impossible to plan the work in advance, and only such lines of inquiry as could be completed within a 12-month period could be followed. It is believed that the possibilities have only been scratched and that with the new appropriation old uses can be expanded and new uses devised.

* * *

When it became apparent that the Wagner labor disputes bill could not be put through Congress, at least without an indefinite extension of the session, a compromise measure was approved. To be assured against active opposition the compromise measure had to be indefinite. As a result the law is being interpreted in a variety of ways. Congress did nothing to settle the controversy as to what constitutes collective bargaining.

The chief point of difference is the determination of the representation of employees. The A. F. of L. is insisting upon a determination of that question by a majority of all workers. In some other labor quarters there is a demand for representation of minorities. Some contend that the A. F. of L. would itself repudiate its support for the majority rule were it to be out-voted in a material number of instances.

Some employers are taking the position that it would be disloyal to employees who do not want to be represented by a faction happening to control a majority of the votes in the plant. The individual has a constitutional right to refrain from joining a union or any particular union. If with a group of his followers who have the same ideas about wages and working conditions, he happened to be a minority, some employers feel that it would be highly unfair to such a minority group that they be denied representation on the committee of workmen who would deal with the employer.

* * *

Conditions under which the R.F.C. will advance funds under the direct loans-to-industry act have been announced. Limitations imposed by the law are: Adequate security must be provided; the applicant must be solvent; applicant must show that credit is not available through usual channels at prevailing interest rates; continued or increased employment of labor must be shown; the amount of the loan must not exceed $500,000 and the term must not exceed five years; applicant must have been in business prior to Jan. 1, 1934.

Before any loan is made, a program of payments will be drawn up. Interest is to be at the prevailing bank rate. Loans may not be used for financing consumer purchases or installment sales. They may not be used to finance exports or imports. They are not to be used for development and promotional purposes, or for expansion into new fields of endeavor. They will not be made unless economic need for the product is shown. No loan will be made to a concern which has not been in operation for a substantial period.

No loan will be made for the operation of a business that is in the hands of a receiver, but applications will be considered for loans which will terminate a receivership and allow the business to be restored to a solvent condition. In fact, officials of the R.F.C. think that great benefit will follow the offering of loans contingent upon the scaling down of existing debts. Ordinarily loans will not be made for the purpose of paying off existing indebtedness.

The principal purposes of these loans will be to supply working capital, such as for the payment of labor and the purchase of material. No loans will be made to supply fixed capital. Exceptions will be made, however, when replacements of machinery or equipment are essential to effective operation, but such expenditures must not exceed a "small portion" of the entire loan.

Delay in Tax Refunds

DELAY in making refunds or drawbacks of processing taxes on cotton textiles going into export is attributable to lack of sufficient supporting data in connection with claims for such monies, according to the Treasury Department.

Rumors have appeared charging the delay to the Agricultural Adjustment Administration, alleging that the AAA desired to hold such payments back in order to show a more favorable balance at the end of the fiscal year. Instigators of these reports failed to take into consideration that it is the Bureau of Internal Revenue and not the AAA that makes the refunds, it is pointed out.

Capt. D. S. Bliss, head of the miscellaneous tax section of the Bureau of Internal Revenue, admitting that there has been a delay in making refunds, declared that in 75 to 80% of the cases claimants have furnished insufficient evidence. The miscellaneous tax section has doubled its force and is running a night shift in order to meet the situation, which Capt. Bliss holds is being relieved rapidly.

In support of his contentions, he explained that during the week ended June 22, his section disposed of 500 processing tax drawback claims, but had to write for additional evidence in 1800 other cases. The information lacking in most cases, it is stated, is certificates of lading and statements as to who paid the processing tax and when and where it was paid. Trade associations have been asked to instruct their members in the necessary procedure.

An aid to clearing up the existing situation is provided in the amendment to the processing tax law passed during the last session of Congress whereby a firm can secure credit against its taxes, without asking for a refund, in cases where drawbacks are due.

Slave or Master . . .

INVENTORIES OFTEN DOMINATE MARKET, IF NOT DOMINATED

Home of Harvard Business School

ONE quiet observation stands out in the report "Managing Cloth Inventories in the Cotton Textile Industry," prepared by Dr. John J. Madigan and issued by the Harvard University Graduate School of Business Administration. Dr. Madigan states:

"The opportunities for speculative profits in the clever merchandising of gray cloths are at times very great. Any mill which is represented in the market by a speculative genius has little reason to worry about sound inventory policies. Such merchants are rare, however, and there are certainly not enough to go around."

The research report in question is complementary to "Merchandising of Cotton Textiles," prepared by Professors M. T. Copeland and E. P. Learned for the Textile Foundation last year. Dr. Madigan conducted the field work on the merchandising report and, upon its completion, he was awarded a fellowship established by E. I. du Pont de Nemours & Co. so that he might continue with an analysis of the inventory problem. Dr. Copeland states in a foreword that, due to various factors, inventory problems will continue to perplex cotton mill executives despite lately improved conditions.

Before proceeding with a detailed analysis of the report, one general observation which Dr. Madigan makes several times is of interest. Apparently he feels that the industry would make greater progress in adopting and applying inventory control if it were not for the tendency to overload executives; in a number of cases where inventory plans actually are made, the proper control is not exercised and the results are confusing and disheartening. He states:

"The adoption of sound methods and the assignment of work to capable men involve aspects of business frequently overlooked. All too often there is a failure to follow up plans to insure that they are carried out as conceived or that they are adjusted to new facts which develop with the passage of time. . . . For this reason, work within a company should be so arranged that executives are not over-burdened and have the time for formulation and checking of inventory policies."

At least twice since the recovery began last year, Dr. Madigan points out, stocks accumulated by cloth mills have led to periods of stagnation, and two chapters of the report are devoted to an examination of the causes of excessive inventories at times and to the effect on manufacturing margins. Desire to keep down manufacturing costs and/or disinclination to sell at prevailing prices are cited as two of the reasons a mill runs for stock. The figures for manufacturing margins on typical constructions from 1926 to 1932 give evidence that margins declined in every case where substantial yardages were accumulated in relation to shipments.

After reviewing all the various factors, the following recommendations are made for mills producing staple fabrics, after a general statement to the effect that the ultimate solution lies in the integration of cloth mills, converting and selling organizations:

1. It should be the goal of standard gray cloth mills to operate on order only; the accumulation of large inventories is unwarranted. Price decisions should be made before large stocks have been accumulated.

2. Closer cooperation between the mill and the selling house is essential.

3. Closer cooperation with customers and at least a partial breakdown of impartial market relations are desirable.

On semi-staple fabrics, mills have been forced into the position of carrying stocks. Despite the large risk involved, relatively few mills and selling organizations recognize the real differences between the inventory problems of staple and semi-staple fabrics. An actual case is given where a mill and a selling agency cooperated successfully in controlling inventories.

The inventory problem is unimportant in fancy fabrics since the mills seldom produce except against orders.

The following four chapters are devoted to the inventory problems of finished and converted fabrics. The first of these gives methods and examples of estimating deliveries, for the purpose of establishing inventory limits and production schedules. Two chapters are given over to a study of the effects of distribution policies and finishing costs on the size of inventories, and a number of typical cases are examined. Application of many of the principles previously discussed is made in the following chapter, where the problems of inventory control are given and the methods of obtaining the desired objectives set forth in detail. Here again Dr. Madigan gives specific examples of various types of organizations, with data on their control methods.

The concluding chapter of the report is given over to the problem of organization for inventory control. Dr. Madigan states, in part:

"The whole argument of the preceding chapters points clearly to the wisdom of adjusting inventory policies to the special requirements of individual products and to the needs of particular markets to which the product is sold. Whenever a company makes a number of products or serves a variety of marketing outlets, it should approach its inventory problems on the basis of each product and each market."

On the question of personnel organization, three types of set-up are discussed.

Copies of the report may be obtained from the Bureau of Business Research, Harvard Business School, Soldiers Field, Boston.

"Big Bad Wolf"

OF NRA WASN'T SO TERRIFYING AFTER ALL, S.T.A. SPEAKERS AGREE

THE ocean breezes at Myrtle Beach, S. C., were not the only refreshing aspect of the annual convention of the Southern Textile Association held there June 29-30. In the midst of so much criticism of the NRA and other parts of the recovery program, it was heartening to listen to speakers who could see the good in it all.

The "big bad wolf" which the NRA may have threatened to be at first, did not present such a terrifying aspect after all when he did appear, declared H. H. Iler, retiring president. "To me, it is a glorious commentary on the ability of the managing and operating executives of the textile industry that the change-over from the old to the new conditions of operation and organization was accomplished with hardly a ripple in the even tenor of these premises," he added.

Another speaker—Luther Hodges, manager of the Carolina Cotton & Woolen Mills—went even further. "I feel that the NRA has done more in a single year for industry (and this includes owners, managers and workers) than any other single agency in a decade, and that the lot of the worker has advanced 25 years, when we consider working time and hourly wages," he proclaimed. "NRA has been to most of us a tonic, refreshing and invigorating. It has rescued us from a jaded, tired, hopeless feeling and made us brighten up and face the world with more zeal and faith."

Mr. Hodges took a pot-shot at the "antis." "I can't help but feel," he said, "that whether we give credit to NRA or not, a great change has come over us, and I ask myself as I would ask the NRA critics and public growlers, what would be substituted for this act."

The convention marked the end of the first year of the second quarter-century of the association's existence. It marked also a continuation—in fact, an acceleration—of its record of progress, and that of the industry itself. Mr. Iler sounded this note when he said:

"Two years ago a prominent manufacturer of the Middle West who sells his products largely to the textile trade in the Southeast, told me he believed the textile industry to be a decadent one. I claim that the signs of renewed vigor displayed since that time completely disprove his theory. The originality and ingenuity of our designers, manufacturers, finishers and fabricators in creating new and different fabrics and garments for the adornment and comfort of milady and her consort, would seem to evidence a quite definite and strong effort to continue very much alive and active indefinitely."

As for the future of the association itself, Mr. Iler is of course not content to have it maintain status quo. Feeling that it does not seem to reach all the men in the industry it can effectively serve, he made a concrete suggestion for the correction of this deficiency. He referred to the fact that many mills have what are variously called "Self Improvement Clubs," "Overseers Clubs," "Textile Clubs" and organizations carrying often the name of the mill or community. He suggested that existing ones be affiliated with the S. T. A.—and that others be organized as affiliates in mill communities where none now exist—as subdivisions to increase the scope of association activities for greater service to the industry.

Primarily, of course, these groups would meet individually to discuss matters pertaining to the work of the respective mills and to the interests of the respective communities. In addition, however, delegates would be selected semi-annually to represent their clubs in the technical discussions of S.T.A. divisional meetings, and problems developed in monthly club meetings would be submitted to divisional authority for inclusion in divisional discussions. Dues, club-meeting expenses, and delegates' expenses would be borne by the respective mills, as they would be the chief beneficiaries. The annual expense would be only nominal and, in Mr. Iler's opinion, would represent a profitable investment.

Mr. Hodges, in his address, told the operating executives that the two greatest fundamentals of NRA—a

Culver Batson, elected president, S.T.A. at Myrtle Beach

H. H. Iler, retiring president of S.T.A. who set keynote

40-hour maximum week and a $12 minimum wage (in the South)—"have made things easier for you in your tasks as foremen, second-hands and superintendents, as it has automatically solved problems which were beyond your control, and in many instances beyond the control of the owners and managers of the mills with which you work."

"No one," he said, "except a very selfish or a very poor business man wants to work anyone an unduly long period, or for an unduly low wage, but for the past several years we have been forced to do things against our desires and best judgment, and the NRA has come to our common rescue as an agent to deprecate long hours and increase low wages and bring us to a common, higher level of competition and operation."

In conclusion, Mr. Hodges suggested five rules for a foreman:

1—A foreman must act straightforwardly with all his help and give them a square deal without favoritism.

2—He must respect them and their abilities and prove this by promoting from the ranks at all possible times. I can recall one mill which lost two superintendents in a period of years and it hired sweepers only—all others being advanced.

3—His conduct and character must be above question and reproach. This is important.

4—He must be fair to the management and his help will better respect him for doing so.

5—He must know his job, keep studying and have someone prepared to take his place, keeping no secrets, but being open and frank, and encourage suggestions from subordinates.

W. M. McLaurine, secretary of the American Cotton Manufacturers Association, spoke on "Scrambled Minds" at the annual banquet Friday evening. He urged the mill men to "unscramble their minds" and look at rapidly changing conditions in the light of a new day and with a feeling of confidence. Following Mr. McLaurine's address, H. S. Reeves, of Charleston, S. C., entertained the members with "Gullah" negro stories.

Featuring the Saturday morning session was an address by Frederick M. Feiker, Washington, D. C., on "Textile Education," based on the report, "Training Men for the Textile Industry," which he compiled and developed for the Textile Foundation.

Mr. Feiker emphasized two fundamental needs of modern textile education: (1) "individualized rather than standardized" institutions and (2) a "common denominator" for textile men and educators. He particularly urged a closer cooperation between mill men and textile educators, explaining that "academic economics" should be more closely related to technical studies. This can be done, he said, by having students study actual mill problems contributed by mill men.

"Textile students should be taught more about the weaknesses of men and less about the strength of materials," declared Mr. Feiker, pointing out that the "knack of getting along" is absolutely essential to a young man's ultimate success in the mill.

"The day has come," he said in conclusion, "when 'the rule of thumb' is no longer the answer. The up-to-date mill man will give the trained textile student an opportunity to work in his plant and intelligently apply scientific principles to everyday operations. There is only one 'best way' to perform every job, and the inquisitive mind—the technically trained mind—will more than pay for itself by helping ferret out this 'best way'."

THE personal sacrifices made by chief executives of textile mills as members of, or in connection with, their Code Authorities have quite justly received wide-spread recognition. However, it would be most unfortunate if similar cognizance were not taken of the heroic efforts made by the operating executives in the mills.

H. H. Iler, retiring president of the Southern Textile Association, made apt reference to this group in his address at the annual convention last month. Despite various restrictive measures applied to operation, he said, and despite imposition of additional substantial tax burdens, manufacturing costs were held low enough to enable some of the mills to apportion something to stockholders out of earnings. He therefore concluded: "Considering that lack of originality and ingenuity on the part of operating executives in these mills would have made it impossible for management to show profit instead of loss in the face of such untried conditions as were encountered, it seems reasonable to assert that operating executives were not found wanting when the hour of trial arrived."

It is to the everlasting credit of the organization he was addressing that its leadership has encouraged and developed just that type of accomplishment among operating executives in the section it covers.

Incidentally, Mr. Iler's suggestion with regard to the affiliation of local organizations—such as "Foremen's Clubs" etc.—with the S.T.A. is an excellent one. We hope action on this will be forthcoming.—*Editor.*

Culver Batson, superintendent and division manager, Consolidated Textile Corp., Lynchburg, Va., who has served the association as vice-president and chairman of the board of governors, was elected president. John A. McFalls, Laurinburg, N. C., was elected vice-president, and Fred L. Still, Greer, S. C., was named chairman of the board of governors.

New members of the board of governors were elected as follows: Hugh S. Clark, Waco, Texas; E. M. Holt, Cooleemee, N. C.; H. R. Hart, Langley, S. C.; and F. R. Lowe, Concord, N. C. Marshall Dilling, Gastonia, N. C., was re-elected executive secretary.

During the meeting, a resolution was passed providing for a Distinguished Service Medal to be presented to Mr. Dilling at the fall meeting at Greenville in recognition of his service in behalf of the association.

Thursday evening, the associate members division of the association held its third annual meeting. I. E. Wynne, Universal Winding Co., was elected chairman to succeed Emmet H. Steger, of the Sherwin Williams Co. W. B. Uhler, Borne Scrymser Co., was elected vice-chairman, and Junius Smith, of the *Textile Bulletin*, was re-elected secretary, and also made treasurer, a new office. The associate members' banquet featured an address by Dr. D. W. Daniel, Clemson College, S. C.

John A. McFalls, elected vice-president, S.T.A.

Marshall Dilling, re-elected executive secretary, S.T.A.

Luther Hodges, who addressed S.T.A. on NRA and the foreman.

F. M. Feiker, who addressed S.T.A. on "Textile Education."

When Orders Are Small

PACKAGE WEIGHTS IN WORSTED DRAWING MUST BE SCHEDULED FOR BALANCED PRODUCTION

By Morris C. Bishop and Henri Meillier

GENERALLY speaking, our mills are set up for the handling of large orders, irrespective of their annual capacity in the design and arrangement of machines, in the arrangement of departments, in the application of labor, in the wage-payment system, and in the scheduling of orders. These conditions were suitable as long as the small order was the exception, but today small orders have become the ruling factor in the operation of the average mill and not a few mills have closed due to their inability to adapt their operation to the new order.

It is no exaggeration to state that small orders are usually accepted with the knowledge that they cannot be handled profitably. This is so generally recognized in the mill that it often creates a lax attitude with respect to this class of business which is not conducive to economical operation. Like the unwanted child, the small order is accepted as inevitable but with very little grace from the superintendent to the second-hand.

Where no special methods are used for the handling of small lots, this attitude shows itself very clearly by the more or less chaotic conditions of the run. Delays are frequent occurrences in figuring machine settings, changing the settings, and making adjustments after the run has started. Neither will the stock flow as regularly as is the case with the large order. If the lot is particularly small, the top weights will not fit into the poundage of the lot, resulting in the partial use of large tops or a large amount of piecing at the can gill. Bobbin weights will be uneven and will cause very irregular run-outs. If there is a rush on the delivery of the lot, the run-out will be cut short by breaking out the remaining productive spindles and relegating the yarn left on these bobbins to the waste bins. Thus the labor costs will be very high and the material costs will be deceptively low unless the actual cost of the waste is included in the cost figures.

This unhappy condition forces this question upon us, "Is it here to stay?" It is our opinion that it is a state of business which has its parallel in other fields and will last for some time. Assuming that this opinion is correct, there are two courses open for the worsted spinner in meeting the requirements. One is to follow the Continental system of using machines especially designed for handling small lots, and the other is to refine present production methods and adapt small-lot runs to our present equipment. The latter course only will be treated in this article.

It is a generally recognized fact, and one which has been emphasized from time to time in the pages of this magazine, that full package weights are an aid in attaining lower spinning costs. However, this principle applies only in the case of long runs, since if we apply it to small lots we find that we do not have the proper number of packages to fill the creel of the next operation.

In a large order the run-out period represents only a small percentage of the whole running period and hence is not a serious loss. The smaller an order becomes, the larger becomes the percentage of run-out time, so that one of the most important problems of low cost in small lots is one of regulating the run-out period and keeping as many spindles busy during the run as is practical.

To illustrate the desirability of regulating the package weights, let us take a specific instance where we have an order which at the rovers weighs 105 lb. Assuming that the capacity of the rover bobbin is .8 lb. and that the machine has 36 spindles, we would be able to get three full doffs weighing a total of 86.4 lb. net. The residue of yarn will partially fill the bobbins of the fourth doff to the extent of .517 lb. per package.

Now take these mongrel-weight packages to a spinning

Operation	STANDARD SCHEDULE NO. 1 — Lot size 500 lb., Drawing set No. 2, Dram Roving 2.5									STANDARD SCHEDULE NO. 2 — Lot size 250 lb., Drawing set No. 2, Dram roving 2.5								
				Doffing Details									Doffing Details					
					Bobbins									Bobbins				
Machine	Spindles	Poundage	Doublings	Doffs	Number	Wt. lb.	Draft	Approx. Drams per 40 Yd.	Knock-off Gear	Spindles	Poundage	Doublings	Doffs	Number	Wt. lb.	Draft	Approx. Drams per 40 Yd.	Knock-off Gear
1. Can Gill	...	550	4	24	....	22.9	4.5	286	25	...	275	4	12	....	22.8	4.5	286	25
2. Spindle Gill	2	545	4	32	64	8.5	4.5	254	21	2	275	4	16	32	8.58	4.5	254	21
3. Weigh Box	4	543	4	18	72	7.55	5	203	18	4	275	4	12	48	5.72	5	203	27/2
4. Draw Box	6	543	4	16	96	5.65	5.5	148	37/2	6	273	4	8	48	5.70	5.5	148	37/2
				15	90	6.03			20									
5. Finisher	8 or 10	540	3	30	240	2.25	5.5	81	27/2	8	271	3	12	96	2.83	5.5	81	17
				45	360	1.5			18/2									
				24	240	2.25			27/2									
				36	360	1.5			18/2									
6. 1st Reducer	24 or 36	538	2	15	360	1.49	5.5	29.5	25	24	269	2	6	144	1.86	5.5	29.5	31
				10														
7. 2nd Reducer	36	535	1	20	720	.74	5.35	5.5	67	36	267	1	8	288	.926	5.35	5.5	42/2
8. Rover	40	530	2	20	800	.662	4.40	2.5	66/2	36	265	2	11	396	.667	4.40	2.5	66/2
9. Spinning	200	520	1	20	4,000	.13	...	.....	....	200	255	1	10	1,980	.128	...	.....	....

frame which has 100 spindles per side. One side will have a full set of creelings weighing 8 lb. each. The other side will have eight packages of the same weight and 36 more spindles with .517-lb. packages. The remaining 56 spindles will have no creelings and will be idle throughout the run unless, as is unlikely, we are able to use these 56 spindles for another lot. In the spinning of this lot, idle spindle time will amount to around 35% due to the variations of package weights and insufficient creelings.

A better method would be to fill the rover bobbins partially, taking off five even doffs giving package weights of .583 lb. net, thereby securing 180 bobbins. With these bobbins the spinning frame would run out evenly and the loss from idle spindles would be around 10%. Such a course requires the proper selection of a knock-off gear to divide the rover doffs evenly.

A still better method would be to take off five doffs weighing .530 lb. per package and make a sixth residual doff giving packages weighting around .265 lb., thus securing 216 bobbins in all. The 180 large packages along with 18 of the smaller ones would fill 198 spindles of the spinning frame. The 18 smaller packages would run out approximately half way through the run and would be replaced by the remaining 18 bobbins, which would run out at approximately the same time as the larger bobbins.

[The above figures can be arrived at by simple algebra, if desired. Let x be the individual weight of the packages on the first five doffs. The $x/2$ will be the individual weight of the packages on the sixth doff. We have therefore, the equation $(x \times 36 \times 5) + \left(\frac{x}{2} \times 36 \times 1\right) = 105$.—*Editor.*]

In the foregoing case the relation of only two machines was dealt with for the purpose of illustration, but the same principles of balance apply to all of the operations from the can gill to the spinning frame. To illustrate the handling of this larger program, five representative schedules have been selected showing a cross-section of the methods used in handling different lot sizes, machine arrangements, and roving weights.

Schedules 1 to 4 show the variations in package weights that are required for four different lot sizes of 500, 250, 100, and 50 lb. as they would be run on Drawing Set 2, where 2.5-dram rovings are required. Schedule 5 treats with the handling of a 500-lb. lot run on Set 3 so that either 6- or 10-dram roving may be obtained.

To explain the use of the schedules, No. 3 has been selected for detailed treatment. To begin with, the drafts and doublings at the can gill are based upon the assumption that the average sliver weight of the top will be 320 drams per 40 yd. in Schedules 1 to 4 inclusive, and 385 drams per 40 yd. in Schedule 5. Where other sliver weights are used, the doublings and drafts of the can gill will have to be changed accordingly. The desired finishing weight of the lot is 100 lb., which necessitates starting with sufficient extra poundage to cover losses. Since the weight shrinks as the run proceeds, the weight reduction is approximated at the different operations under the column headed "Poundage."

Before treating with these schedules in detail, certain reservations should be stated with reference to them. They are not intended to be guides to the drafts and sliver weights which should be used at the several operations, since spinners often follow widely differing practices in drawing and spinning with apparently equal success. However, the exact details of applying the scheduling of package weights and numbers are inseparable from the accepted practices of the mill where they are applied.

STANDARD SCHEDULE NO. 3

Lot size 100 lb., Drawing set No. 2, Dram roving 2.5

Spindles	Poundage	Doublings	Doffing Details: Bobbins: Doffs	Bobbins: Number	Bobbins: Wt. lb.	Draft	Approx. Drams per 40 Yd.	Knock-off Gear
...	110	4	4	....	27.5	4.5	286	30
2	110	4	8	16	6.85	4.5	254	17
4	109	4	6	24	4.54	5	203	22/2
6	109	4	4	24	4.54	5.5	148	30/2
8	108	3	6	48	2.25	5.5	81	27/2
24	108	2	3	72	1.5	5.5	29.5	25
36	107	1	3	108	.99	5.35	5.5	45/2
36	106	2	5	180	.535	4.40	2.5	53/2
			1	36	.267			
200	105	1	4	792	.133	...	.....	....

STANDARD SCHEDULE NO. 4

Lot size 50 lb., Drawing set No. 2, Dram roving 2.5

Spindles	Poundage	Doublings	Doffing Details: Bobbins: Doffs	Bobbins: Number	Bobbins: Wt. lb.	Draft	Approx. Drams per 40 Yd.	Knock-off Gear
...	55	4	4	....	13.8	4.5	286	30/2
2	54	4	8	16	3.37	4.5	254	17/2
4	54	4	6	24	2.25	5	203	22/4
6	53	4	4	24	2.22	5.5	148	30/4
8	53	3	6	48	1.10	5.5	81	26/4
24	52	2	1	24	1.46	5.5	29.5	25
			1	24	.73			
36	52	1	2	72	.725	5.35	5.5	65
36	52	2	5	180	.262	4.4	2.5	52
			1	36	.131			
200	50	1	2	396	.126		...	...

STANDARD SCHEDULE NO. 5

Lot size 500 lb., Drawing set No. 3, Dram roving 10, 6

Spindles	Poundage	Doublings	Doffing Details: Bobbins: Doffs	Bobbins: Number	Bobbins: Wt. lb.	Draft	Approx. Drams per 40 Yd.	Knock-off Gear
...	550	6	20	....	27.5	5.25	439	20
2	545	5	30	60	9.05	5.5	400	28/2
6	543	5	16	96	5.67	6	333	17/2
8	543	4	10	80	6.78	6.25	213	31/2
10	540	4	24	240	2.25	6.5	131	17/2
			36	360	1.50			22/4
24	538	2	10	240	2.23	6.5	40	28
36			10	360	1.49			37/2
...	...	..	..	...	....	....	...	...
40	530	1	20	800	.662	6.66	6	55
						4.00	10	33
200	520	1	20	4,000	.13	....	...	...

Hence the drafts and sliver weights employed by the mill which adopted these schedules are included here.

Beginning at the can gill, if we use four doublings and a draft of 4.5, the resulting sliver will weigh around 286 drams per 40 yd. But before deciding upon the number of doffs and the required can weights, reference must be made to the requirements of the spindle gill. Since four doublings are desired at this machine, we divide the poundage of 110 by 4, giving 27.5 lb. per double can of doff. This weight is well within the capacity of the double can; and if a No. 30 gear is used in the knock-off motion, the desired doff weight will be secured.

The weigh box has four spindles; and since four doublings per spindle are desired, the number of bobbins from the spindle gill should be in multiples of sixteen. Since 16 bobbins will hold the lot giving a package weight of 6.85 lb., a knock-off gear is selected to give eight doffs. A No. 17 gear was found to be suitable in this instance.

Since the draw box has six spindles and we require four doublings per spindle, the number of weigh-box bobbins should be in multiples of 24. Dividing 24 into 109 will give a weight of 4.54 lb. per weigh-box bobbin;

and since this is well within the capacity of that bobbin, it is suitable. A No. 22 knock-off gear with a double end peg will divide the doffs evenly to give the 24 bobbins. Such a knock-off arrangement is designated as 22/2 and is equivalent to an 11-tooth gear.

Identical principles apply in subsequent operations until we come to the rover, where we take off five doffs weighing .535 lb. per package and a residual doff weighing .267 lb. per bobbin. The reasons for such a method have been explained.

Several variations are found in Schedule 1 which do not occur in 3. The doffs from the draw box are arranged so that either an eight- or a ten-spindle finisher may be used, and the doffs from the finisher are arranged so that either a 24- or a 36-spindle first reducer may be used.

Schedule 5 may be understood from the explanations covering 3, the only variations being that the roving drafts may be changed to give either 6- or 10-dram roving without affecting any of the operations previous to the rover.

In applying such schedules some difficulties may be experienced at the outset which may necessitate the revision of some of the details of the schedules. This particularly applies to the knock-off gears, which must be properly selected to give satisfactory results. In practice it may be advisable to add other figures to those outlined herein covering details of machine settings.

The principles treated with herein are not confined to the Bradford system, since similar principles have been applied to the French system for many years with considerable success.

Turn-Ups and Stripes

By John Picone

AMONG NOVELTY SATINS HOLDING PROMISE FOR FALL

PRESENT demand is causing loom after loom to be mounted for satins of different types and constructions, but with the 60x80 construction leading the field. Fall promises to demand novelty satins, and both turn-up and stripe weaves in silk and rayon are already in good production.

Many manufacturers now turning to satins have been running prints for so long that they have forgotten certain details of the weaving which they need to remember. In numerous cases the looms have not been kept in first-class condition, due no doubt to laxness on the part of the loomfixer. The result is such imperfections as shires or cracks, joinings, and floats.

Most complaints of defective merchandise are based on shires, and these are caused in some cases by a slow pick-up in the lay motion, due to uneven tension on the back springs and reed box. At other times improper adjustments of the friction and brake motions are responsible.

Plenty has been written on the subject of bad joinings; but still they occur, giving those differences of color and shade in the finished fabric.

Floats are often the result of crowding too many heddles to the inch. For example, it is ridiculous to crowd 300 heddles to the inch on five shafts, as, not only will floats occur, but the silk will be chafed and the weaver will have no end of trouble in inserting his hands to hold the heddle and pull the end through the eye.

I suggest that each weaver on satin be given a piece of white chalk or crayon as an aid in finding mispicks, which do not show up on the back of the cloth. The weaver should be instructed to draw a line straight down the cloth every so often, in which case mispicks will show up clearly as horizontal lines.

Fig. 1 is an all-silk turn-up satin made on ten shafts with two for edges. The construction is as follows: 12750/1 ends in main warp on ten shafts and 48/2 in edges on two shafts; warp, 20/22 Japan; reeding, 5/1; reed, 60; sley, 300 per inch; filling, 3-thread 13/15 Japan two left and two right, 80 picks per inch. In mounting this satin, care must be taken with the entering, which in this case can be more conveniently described than shown, due to its length. The first five shafts are entered from 1 to 5 for 25 repeats, the last five are entered from 6 to 10 for eleven repeats, the first five are entered in the same way for nine repeats, the last five for eleven, the first five for five, the last five for eleven, the first five for nine, and finally the last five for eleven. The timing should be slightly earlier than usual. The tension must not be too heavy and the reed must move freely.

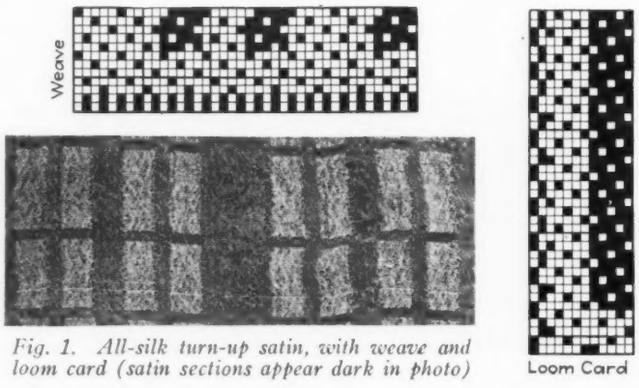


Fig. 1. All-silk turn-up satin, with weave and loom card (satin sections appear dark in photo)

Fig. 2 represents an all-acetate striped satin woven on ten shafts plus two for edges. The construction embodies 6150/1 ends in main warp and 48/2 in edges; warp and filling, 100-denier acetate; reeding, 2/3; reed, 54; sley, 135 ends per inch; picks, 64 per inch, two left, two right.

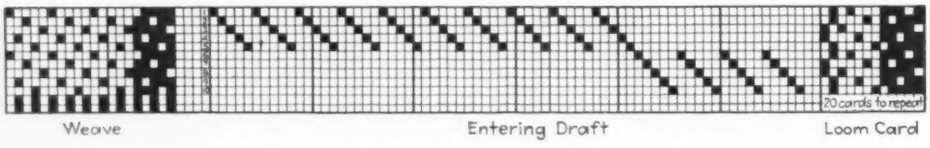


Fig. 2. Weave and drafts for satin-stripe acetate

1933 Worsted Yarn Trends

WHARTON SCHOOL SHOWS SWING TO ENGLISH RING SPINNING

◆ *The Industrial Research Department of Wharton School of Finance & Commerce, Philadelphia, which has been surveying the worsted yarn field annually since 1929, has just issued a review of production trends and spinning equipment changes for the year of 1933. The report carries forward the statistical work of the past which was summarized in a report issued last fall covering the 1919-1932 period, as noted in* TEXTILE WORLD *for October, 1933. The current work has been guided by H. S. Davis.*

MEASURED in pounds of yarn produced, 1933 was the best year in worsted yarn manufacturing since 1929 and in some branches even that year's output was surpassed, according to a survey just released by the Wharton School of Finance & Commerce, Philadelphia. Noteworthy in respect to gain was the output of weaving yarn for own use by integrated firms. In 1929 about 68,300,000 lb. of worsted weaving yarn was produced by integrated weaving mills for their own use, but in 1933 these firms produced over 78,600,000 lb. for their own use—an increase of 15%. A part of this increase may have been caused by the shift toward yarns of lower count of which there has been some evidence in recent years. Yarns for sale totaled 32,200,000 lb. in 1929 and 27,300,000 lb. in 1933.

The production of worsted knitting yarn during 1933 not only exceeded that of 1929 but ran considerably ahead of the average output for the nine years, 1921-1929. "Such a record," says the survey, "makes one wonder how long it will be before competing yarn manufacturing industries develop a 'substitute' for worsted knitting yarn, or perhaps of more serious import, learn now to make a satisfactory worsted knitting yarn on their own machinery—say on cotton machinery." Judging from the first six months of 1934 there will be a decline from 1933 production records.

On Jan. 1 of this year 89% of the existing English and 93% of the existing French spindleage was in place available for immediate operation. The remaining spindles were either not in operating order or were in mills which had been completely idle throughout 1933. According to reports filed by firms owning over two-thirds of the existing worsted spindleage in the United States, there are practically no English spinning spindles and less than 2% of the French spinning spindles which mill men consider as too worn or too obsolete ever to be run again.

The number of English spindles in existence on Jan. 1, 1934, was slightly less than the number in existence on Jan. 1, 1933, while the number of French spindles in existence showed no change between these two dates. However, spindleage changes did occur during the year which tended to increase spinning capacity. These changes were the purchase of over 90,000 second-hand spindles by active firms, most of which came from firms that had been inactive for several years, and the conversion of over 20,000 cap spindles to English ring spindles. Over 75% of these converted spindles were of the stationary ring rail type. About 12,000 spindles were bought new during the year and about 20,000 spindles were scrapped.

With the exception of 1931, the growth of English ring spinning has been uninterrupted since 1928. A good share of this growth has come about through the conversion of cap spindles to ring spindles, particularly to ring spindles of the stationary ring rail type. English spinning is still predominately cap, but the persistent growth of ring spinning promises to lessen this dominance.

In French spinning, the number of ring spindles also increased during 1933 but not on a scale comparable to English ring spindles. The French increase amounted to only 8% as against 31% in English ring spindles.

Table I—Weaving Yarn Produced for Sale and for Own Use

(In millions of actual pounds)

Made For	1921-1929 Av.	1929	1931	1933
Total Weaving Yarn*				
Total	**	100.5	90.8	105.9
Own Use	**	68.3	59.1	78.6
Sale	32.5	32.2	31.7	27.3
English Weaving Yarn*				
Total	**	74.4	67.9	78.0
Own Use	**	51.4	44.1	57.7
Sale	20.6	23.0	23.8	20.3
French Weaving Yarn				
Total	**	26.1	22.9	27.9
Own Use	**	16.9	15.0	20.9
Sale	11.9	9.2	7.9	7.0

*May include small quantity of mohair.
**Comparable data not available.

Table II—Knitting Yarn Production during 1933

(In millions of actual pounds)

Kind	1921-1929 Av.	1929	1931	1933
Total	39.8	43.6	46.9	44.0
English	29.6	30.5	29.8	30.1
French*	10.2	13.1	17.1	13.9

*Includes merino yarn spun for knitting purposes.

Table III—Changes in Worsted Spindles by Kinds, Jan. 1, 1933, to Jan. 1, 1934

(In thousands of spindles)

Kind of Spindle	Spindles in Mill Possession Jan. 1, 1933	Spindles Added During 1933: Bought New	Spindles Added During 1933: Bought 2nd Hand	Spindles Disposed of During 1933: Sold	Spindles Disposed of During 1933: Scrapped	Spindles Rebuilt During 1933: Number Before Rebldg	Spindles Rebuilt During 1933: Number After Rebldg.	Spindles in Mill Possession Jan 1, 1934
Firms Producing Worsted Yarn Other Than Carpet Yarn								
English, Total	1,608	3	81	88	14	37	37	1,590
Cap	1,475	*	77	85	14	37	16	1,433
Stationary Ring	28	2	1	1	.....	.....	16	46
Traversing Ring	53	.....	3	1	.....	.....	5	60
Flyer	52	.....	.....	1	*	.....	.....	51
French, Total	829	9	10	15	6	.....	2†	829
Mule	738	4	10	15	6	.....	.....	731
Ring	91	5	.....	.....	.....	.....	2†	98

*An even 500 spindles or less.
†Re-built from twisting frames.

Quicker Standards

D-13 TAKES STEPS TO SPEED WORK—REELECTS OFFICERS

WITHOUT abandoning any of the careful procedure necessary to the establishment of well-advised standards, Committee D-13, the textile committee of the American Society for Testing Materials, took steps at the society's annual meeting at the Chalfonte-Haddon Hall in Atlantic City last month to make its service more rapid. In the future, proposed standards will be published before they are advanced to the tentative-standard class. They will then be called "draft standards," and it is expected that their approval and adoption will take place more quickly than under the old system. The proposed standards may prove of some service to the industry in the draft form, but it was pointed out that they must not be regarded as true or approved standards.

At the election of officers, Prof. H. J. Ball, of Lowell Textile Institute, was returned to the chairmanship for his third consecutive term, a record in D-13 annals. Also reelected were W. H. Whitcomb, secretary; B. H. Foster, first vice-chairman; and J. M. Weaver, second vice-chairman. The faithful and energetic work of Professor Ball and Mr. Whitcomb, which has resulted in making D-13 a factor of rapidly growing importance in the textile industry as well as one of the most outstanding of the A.S.T.M. committees, was eulogized by Alfred Suter and K. B. Cook. Professor Ball, it was announced, has recently been elected to the executive committee of the parent society.

A particularly important piece of business conducted at the meeting was the steps taken to establish a new B subcommittee (B subcommittees function at the request of A subcommittees) on sampling and the interpretation and presentation of data. It is felt that such a committee will be of great value in educating and guiding the members of the other groups in these very important phases of their work. The personnel of the new committee has not been chosen as yet.

Other matters of general business included the reading of a letter sent by the secretary of the A.S.T.M., C. L. Warwick, to the code authorities at Washington offering the services of the society in the work of drawing up quality standards where it has been decided that such standards shall be established. The letter emphasized, however, that the society takes a neutral stand on the question as to whether or not quality standards should be included in codes.

New York City was decided upon as the location for the October meeting of D-13, and it was recommended to the planning committee that a Southern location be considered for the March meeting.

During the reports of subcommittee chairmen, Professor Ball tendered special congratulations to subcommittee A-3, on wool, which is under the chairmanship of G. E. Hopkins, of Bigelow-Sanford Carpet Co. This committee is one of the youngest in the organization, and at this meeting it offered the results of two years of heavy, conscientious work, bringing onto the books of D-13 the first specifications dealing with wool. The following three classes of tentative test methods and specifications were recommended by A-3 to be submitted to Committee E-10 on Standards for approval: test methods for hard-scoured content of wool, specifications for woolen yarns, and specifications for worsted yarns. A reporter who attended a preliminary meeting of A-3, noted that the committee has no mind to rest on its laurels, but is planning with enthusiasm to carry out another ambitious program during the coming year.

Martin Castricum, chairman of Cotton Section IV on Tire Fabrics, reported that his group has reviewed the work on single-yarn chafer fabrics and recommended that the addition of three such constructions be submitted to letter ballot. This committee is now at work on methods for calibrating cord-testing machines.

The chairman of subcommittee A-4 on Asbestos, J. M. Weaver, recommended to letter ballot a number of changes in his specifications, particularly with reference to grading, in order that there might be better agreement with the regulations of the code authority.

Prof. H. J. Ball, reelected chairman of D-13 for third term.

Subcommittee B-2 on Nomenclature and Definitions, under A. L. Brassell, reported that it is preparing to revise the Tentative Definitions and Terms Relating to Textile Materials to include only those terms of a technical and scientific character which appear in D-13 standards, relegating other terms to a proposed glossary for the textile industry.

In the annual report of D-13 made by Professor Ball to the parent society, at the general meeting on June 28, revision of the following standards was recommended: Specifications for Chafer Tire Fabrics (D316-33) and General Methods of Testing Woven Textile Fabrics (D39-27). Also proposed was revision of the following tentative standards: Definitions and Terms Relating to Textile Materials (D123-33T) and Specifications for Holland Cloth (D376-33T). The adoption as standard of the following tentative standards was recommended: Specifications for 0.007-in. Cotton Tape (D335-31T) and Method of Determining Relative Humidity (D337-31T). Finally it was proposed that the following tentative revisions of standards be adopted as standard: Specifications for Tolerances for Hose Ducks and Belt Ducks (D181-33), Specifications for Tolerances and Test Methods for Certain Light and Medium Cotton Fabrics (D274-29), and General Methods of Testing Woven Textile Fabrics (D39-27).

Boxed Stocks

SIMPLE CONTROL SYSTEMS FOR HOSIERY MILL AND JOBBER

By Milton M. Abrams
Ajax Hosiery Mills
Phoenixville, Pa.

Shade	8½	9	9½	10	10½
Style 444					
Crashtone	4½	6¾	14	10¼	3
Chukker	11¾	12½	26¼	21¾	8½
Extra dry	7	15	23½	17¼	4¾
Liqueur	5	12½	19¼	14¾	2¼
Manoa	13	24½	35¾	29¼	10¾
Nudawn	8¾	14½	28¾	19¼	6½
Sherrytone	5¾	12¼	19	15	18

Fig. 1. Stock card used in one system of boxed-stock control

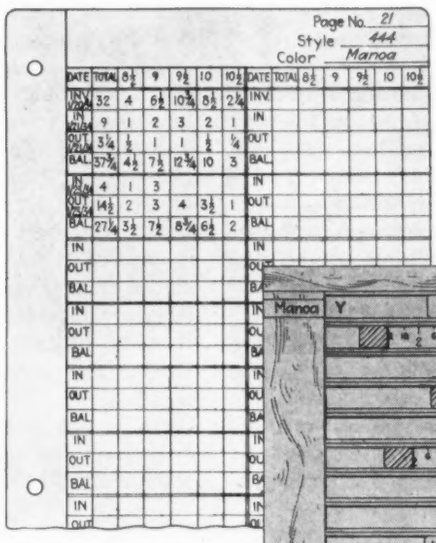


Fig. 2. In a second system of boxed-stock control, records are kept in a loose-leaf book

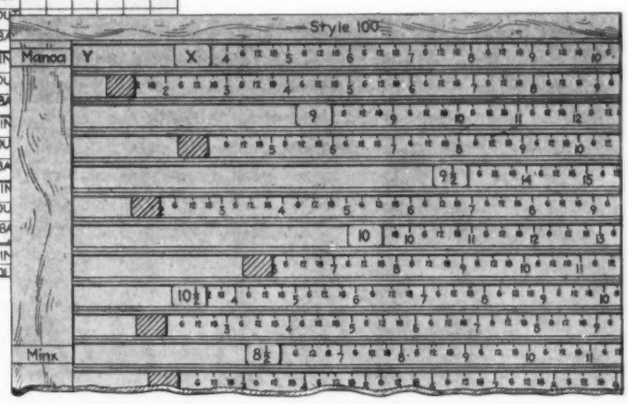


Fig. 3. Slide indicator employed in third, and most efficient system of boxed-stock control

BOTH the hosiery jobber and the hosiery mill sell to the retail trade and require boxed stocks with which to service their accounts for immediate requirements. It is necessary that this stock be maintained at a moderate level at all times to prevent delays in shipping or the shipping of only part of an order. Delays not only incur ill will and dissatisfaction on the part of the customer, but often result in cancellation of orders and charge-backs to the mill or jobber for double transportation of orders that have been shipped in part. Despite the fact that a good control system for boxed stocks has many advantages, some concerns still continue to guess at their stock and replenish it only when they actually see that the stock is running low. Other companies use systems which involve considerable pencil work or require extensive calculations and bulky records. However, a control system to be really practical must be simple and economical; it must not take any considerable length of time to maintain; and it must be up to the minute at all times. Three systems which, in the writer's opinion, meet these requirements are described.

In the first system, a stock card (Fig. 1) is kept for each style. On each card are listed the style number, the shades in stock, and the actual physical inventory. The quantity record according to size is kept in pencil. As additional stock is placed in the stock bins, the pencil figure is erased and the new stock inventory figure entered. As stock is withdrawn, the pencil figure is erased and the new figure for the balance of the stock remaining is entered. This record can be kept by having the figures erased and altered as the stock is withdrawn and increased. If preferred, before the orders are sent to the stock department, they can be totaled according to shades and sizes and all changes made on the card at one time. This must be left to the discretion of the head of the department.

For the second system a loose-leaf book is required. Each color in each style has a separate sheet (Fig. 2). On first line is entered the physical stock; on second line is entered any stock that has been added to the bins; on the third line is entered only stock which has been withdrawn from the bins; and on the fourth line is entered the balance of the stock remaining after the transactions have been completed. Here, again, separate figures can be kept for each order as it is withdrawn, or all the orders can be grouped together and one composite figure used for withdrawals.

The third system is unquestionably the best. The initial cost for equipment is only a few dollars; and, once the system is installed, it requires but a few minutes of a clerk's time daily to tally the records. For this system, a special set of slide indicators is used. Fig. 3 illustrates how this slide operates. The indicator slides back and forth in a groove. To

Style 100	Brown Taupe					
	Total	8½	9	9½	10	10½
On hand	81½	2½	8½	29½	21	10½
In process		–	–	–	–	–
Orders	16	2	3	5	4	2
Balance	65½	10½	5½	24½	17	8½
On hand	65½	10½	5½	24½	17	8½
In process	35	5	8	10	9	3
Orders	40½	5½	7½	12½	10½	4½
Balance	60	10½	6½	22	15½	7
On hand	60	10½	6½	22	15½	7
In process	10	–	10	–	–	–
Orders						
Balance						
On hand						
In process						
Orders						
Balance						
On hand						
In process						
Orders						
Balance						

Fig. 4. Form employed for determining amount of stock to be applied against orders

ORDER No.	Customers	8½	9	9½	10	10½
862	John Smith	½	1	1½	1	¼
26541	Acme, Inc.	2	3	5	4	2
A221	Jhn Palace	¾	1½	3	2	½
2-596	Jhn Fair	6	8	10	9	4
	Brown Taupe					

Fig. 5. Card for recording orders applied against a particular shade

DATE TO DYER	DYE LOT No.	DATE IN BINS	8½	9	9½	10	10½
12/26	1659	12/29	3	4	6	5	2
1/8/34	2437	1/11	8	10	15	13	6
1/23	3356		4	6	8	5	3

Fig. 6. Reverse of card shown in Fig. 6

the indicator is attached a tape. This tape is graduated in one-quarter dozens up to the maximum amount of stock desired in stock at any one time. As the indicator is moved horizontally across the slide, the tape is pulled underneath it in the opposite direction so that the slide can be maneuvered back and forth to indicate any amount of stock. The advantage of having the tape adjusted so that it can slide underneath the indicator is that the frame holding the slides will not be too large and cumbersome. The illustration shows the board set up for a stock of Style 100. Each shade is marked off by a dividing strip, and there are two slides for each size. The first slide of each size shows the actual stock on hand. The second slide is used as a supplementary record. As the individual orders are applied against the stock, the second (or supplementary) slide is used and the indicator is moved over to the amount of stock withdrawn. At the end of the day when the records are tallied, the total amount of stock indicated on the supplementary slide is applied against the slide showing the permanent stock. The permanent stock slide is adjusted to show the actual stock remaining in the bins, and the supplementary tab is then returned to its neutral position at zero ready for use on the next withdrawal.

This method eliminates all pencil and paper work and at all times shows the actual standing of the stock.

It is necessary to keep another record for orders to be applied against boxed stock in process, as it is essential to fill in the stock continuously up to the requirements for minimum quantities to be maintained at all times. A form which may be used for this purpose is shown in Fig. 4. On this form the "Stock on Hand" is first entered, on the next line the "Hosiery in Process" for stock is entered. These two figures are totaled, and from them is subtracted the "Amount of Stock to Be Applied Against Orders." If the remainder is not sufficient for the minimum stock requirements, additional stock will have to be ordered or dyed.

As very often there are a number of orders waiting for a particular shade or shades before the order can be shipped, it is a good idea to keep a record of these orders to be applied against the shades. Fig. 5 shows a card for the shade "Brown Taupe" and a list of the orders to be applied against this shade when it is placed in stock. Fig. 6 shows the reverse side of the card, on which is entered the quantity of Brown Taupe that has been placed in process to fill in the stock. When this lot of Brown Taupe is placed in the stock bins, the entry on the front of the card is checked off; and as the orders entered on the back are applied against the stock, they also are checked off. It may be found from time to time that there is not sufficient stock in process to take care of orders applied against the stock. In this case, additional stock should be dyed to fill in the stock bins.

They Like it!

NEW ENGLAND TAKES A VOTE ON THE NRA

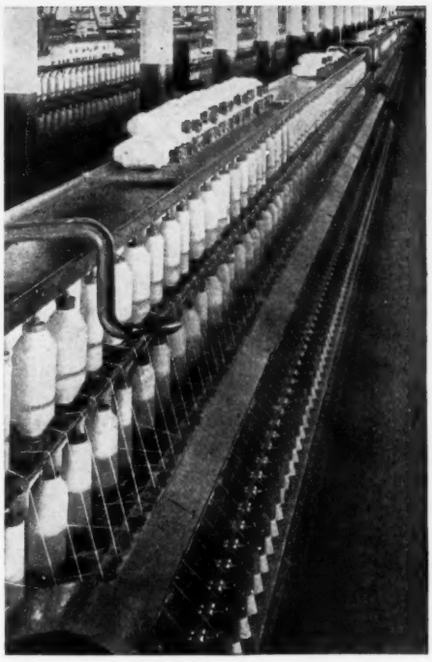
Effect of Code Provisions

	Helpful (%)			Of No Effect			Hurtful		
	Cotton	Wool	General	Cotton	Wool	General	Cotton	Wool	General
Eliminating unfair competitive practices	61	47½	46	36	42½	45	3	10	8
Reducing and relieving unemployment	71	45	48	21	37½	43	7	17½	8
Maximum hours of labor	84	50	33	3	8	18	13	41	48
Minimum rates of pay	86	65	45	3	15	32	10	20	22
Wage differentials	62	27	18	30	57	61	7	16	21
Collective bargaining	11	10	5	42	55	70	46	35	24
Limitation of capacity	63	28	14	18	32	51	18	40	35
Restriction against selling below cost	37	32	40	56	65	53	6	3	6
Price stabilization plan	20	18	37	73	71	54	7	10	9

COLD figures bear out the belief that cotton-mill men are pretty well pleased with their code. An extensive survey on the NRA, conducted in its area by the New England Council, shows the cotton division voting 84% in favor of limitation of hours of labor, as against a vote of 33% registered by general industry. The collective bargaining clause was the only one of the questions which received a negative reaction from the cotton industry. We are indebted to the Council for permission to use the figures on cotton and wool to contrast with the results of the general survey as published, which, it will be noted, are also favorable to NRA.

One of the most striking features of the accompanying table is the difference between the cotton and wool groups, as brought out in the questionnaire. Thus we find 63% of the cotton industry believes that limitation of capacity is helpful, while only 14% of the wool manufacturers vote favorably on the question. There is a marked divergence on almost all the important points. Lack of cooperation in the wool industry has led to difficulties in administering the code and, consequently, there is less enthusiasm. Another factor, which shows up particularly in limitation of capacity, is that there is a much wider spread in the wool group between the most efficient and the least efficient mills and the former desire to capitalize on their ability to produce at low cost and operate full.

In making up the table, percentages are figured on the total number of replies to *each* question (N. E. Council's figures were percentages of *all* replies), minor fractions being disregarded. Judging by the number of replies, general industry is most interested in eliminating unfair practices and in relieving unemployment, the cotton industry in hours of labor, and the wool industry in hours of labor and wage differentials.



Short Doffing

A PREVENTABLE EVIL WHICH SHOULD NOT BE TOLERATED

By Frank L. Byrd

AN ALL too-common practice in the operation of various types of textile machines is that of short doffing. Frequently short doffings are made in order to prevent two or more machines from standing idle at one time waiting to be doffed. At other times the practice is followed merely because it happens to be convenient. In any event, the drawbacks of short doffing outweigh any possible advantages.

As an example of the effect of short doffing, let us consider first a cotton fly frame running on 3.00-hank roving. Commonly, an 8x3½-in. fly-frame bobbin will carry approximately 14 oz. of roving when filled. By cutting the doff one, two, or three layers, we make an appreciable reduction in this amount. That is, one layer contains about 34 yd.; two layers, about 67 yd.; and three layers, approximately 101 yd. This corresponds to a diminution of 94, 186, and 281 grains of roving per bobbin, respectively.

Speeders are built ordinarily with 102 to 168 spindles, although the smaller frames have as many as 216. If we take a 152-spindle speeder for our example, we find that short doffing by one layer lessens the amount per doff 2.041 lb.; two layers, 4.039 lb.; and three layers, 6.102 lb. This will increase the unit cost of doffing by 1.53, 3.04, and 4.59% respectively. These figures apply to the doffing costs alone, and do not take into consideration the extra bobbins required for this amount of finished roving in the course of a day, the extra handling required in the spinning department, the additional length of time each machine must stand while being doffed (if doffing is short by three layers, an extra doff will be required for each 22 doffs), the profitless consumption of power, or the depreciation of belting and pulleys.

Good Judgment Necessary

It is possible, of course, to make doffs so full that excessive end breakage will arise, and good judgment is necessary to prevent this. In order to have the maximum length filled on the bobbins, the builders on the fly frames, after the carriages have been leveled, should be set to build from approximately ⅛ in. from the tip of the bobbins to a point as low as the flyer pressers will permit. The bobbins should then be filled to as great a diameter as is possible without causing excessive end breakage. The tension gears should be of the right size to make a firm bobbin. However, while too little tension will cause lumps to form on the bobbin while it is being filled, too much tension must also be avoided.

Turning our attention to spinning, we find that as a rule in an 8-hr. day a spinner will place some 720 to 1000 bobbins of full roving in the creels of a spinning frame. If we assume an average of 860 bobbins per spinner per day, we get an increase in creeling of 13 bobbins by short doffing by one layer; 26 bobbins, by two layers; and 39 bobbins, by three layers. That is, the unit cost of doffing is again increased 1.53, 3.04, and 4.59%, respectively. Furthermore, if the spinner had this time to devote to patrolling, the weight of laproll waste would be decreased, the amount of the yarn produced would be increased, and the quality of the yarn would be improved.

Another point for consideration is that of reworkable waste from stripping these bobbins in the spinning room, whether it be done by hand or by bobbin-cleaning machinery. If an average of 15 yd., or 42 grains, of roving is left on the bobbin to be cleaned, it will amount to 546 grains on 13 bobbins, 1092 grains on 26 bobbins, and 1638 grains on 39 bobbins. These are small amounts daily, but in the course of a year of 250 working days will run up to 19.5, 39.0 and 58.5 lb., respectively. On the basis of $0.0308 per lb., the cost for reworking through the waste machine, pickers, cards, drawing frames, slubbing and fly frames to the spinning room will aggregate $0.60, $1.20 and $1.80 per spinner. If a plant has from 25 to 150 spinners, the cost for reworking will climb to an appreciable figure.

Other Drawbacks

Short doffing has several drawbacks other than those already mentioned. On the card, we are desirous of preventing the over-filling of sliver cans, which will cause jammed coiler heads; but short doffs will increase creeling on the drawing frames thereby decreasing production. Again, short doffing on the drawing frames will increase creeling on the slubbers and make more piecings necessary. Each time an end is spliced or a new bobbin is creeled, a slight defect—such as a lump, long splice, or thin place—is produced, which will follow through the subsequent processes.

Short doffing in the spinning room means extra knots to be tied on the spooler and extra shuttles to be filled or batteries to be refilled. On the twisting frame, short doffing will naturally increase the cost, produce more knots, and entail extra splicing. The more frequently the cloth is cut on the loom, the greater will be the number of short pieces or scraps in the cloth room.

In most instances short doffing is a preventable evil and the practice should not be tolerated.

ARE WE TO WITNESS A REBIRTH OF

Manipulated Worsteds?

AFTER all a textile manufacturer can't make fabrics to please himself and remain long in business. He must, instead, please his customers; he must make goods that are saleable. So long as he does that his place in the sun is assured.

The above sermon-in-a-nutshell is a necessary preamble to any talk on manipulated (or cotton warp) worsteds. A merchant in a position to know stated early in June that 90% of the worsted men's wear business for spring had been done in fabrics at $1.95 per yard or lower. That range covers only the cheapest of the all-worsteds, but it includes all of the manipulated worsteds.

Early in the season when the cost of all-worsteds seemed headed for the skies, manipulated lines were hailed as the only hope of the chain clothier who wished to retain his popular price ranges on worsted-type garments. Of course he still had a wide variety of carded woolens to choose from, and he went largely to woolens which accounts for the disproportionate slump in worsteds during the last two months. But of the worsteds used in low-priced garments, probably a larger portion than clothiers willingly admit have been of the manipulated class—principally 80% worsted, 20% cotton.

As the season closes all-worsteds have eased off in price until the price differential in favor of manipulated numbers has fallen to 5 to 7½% which is not enough difference to encourage general substitution. For example there is an 80-20 worsted on the market at $1.45 which is near the top for this class of material. The lowest priced all-worsted is reported at $1.57½ which is only about 8% over the manipulated. Buyers, however, state that the manipulated has this point in its favor, that it looks better than the cheapest worsted. To duplicate worsted yarn quality and picks per inch of the manipulated fabric, it would be necessary to cite an all-worsted at around $1.80. The outlook as expressed by buyers at present is for a reduction in prices for worsteds for the fall season, and as a result, the manipulated lines will not be so important. Buyers may be right so far as the immediate start of the next season is concerned, but there are plenty of economists who believe we are moving into a period of generally higher prices on all commodities, and if they are right the manipulated lines may again become vital items for volume business a season or two from now.

The situation hinges on the added margin the clothier will pay for the privilege of calling his line "all wool." This in turn is settled for him by the strength of con-

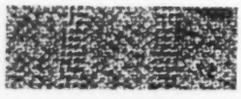


Fig. 1

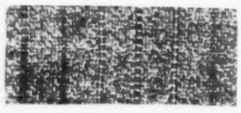


Fig. 2

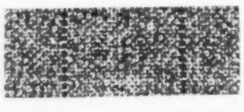


Fig. 3

OF THE accompanying illustrations Figs. 1 to 6 represent tropical suitings of 8½ to 9 oz. in weight and 57 in. in width; and Figs. 7 to 18 represent heavier fabrics of the trousering type.

The construction of the tropical worsteds is about as follows: 2880 ends of 26/2 cotton reeded 22/2, set 66 in. in reed, and shot with 44 picks of either 2/40 or 1/20 worsted. The weave is plain and the draw is straight on eight harnesses. Some mills, however, believing a straight draw leads to crowded shedding, employ the following order: 1, 3, 5, 7, 2, 4, 6, 8. In such cases the usual chain:

x . x . x . x .
. x . x . x . x

is replaced by the following:

x x . . x x . .
. . x x . . x x

Some mills, with the same object in view, braze a small piece of metal on the cylinder just ahead of the first tooth to catch on two vibrator gears in order that certain harnesses will begin to move sooner than others and all threads will not be crossing at exactly the same time.

Incidentally, tropical suitings of these types are perhaps the first class of fabric that a cotton mill which, wisely or not, might be contemplating entering the worsted field would consider manufacturing.

The dressing patterns for the first six fabrics are as follows:

Fig. 1

| | | |

sumer buying power, and it is common experience that when prices rise, they tend to outrun consumer ability to pay.

Here we refer back to the platitude offered at the start—that mills must make saleable goods. When clothiers' ranges are limited and cloth prices rise, it is an obvious necessity that something must be done to cheapen the product. This is easily accomplished in worsteds with introduction of part or all-cotton warp. The old-timers can remember that back of 20 years ago manipulated lines had a regular and accepted place in the market. The advent of "prosperity" in the 1920 to 1929 period, and exaggerated cutting of manipulated-worsted quality in an effort to hold a dwindling market by price appeal alone, combined to sign the manipulated worsteds' death warrant. The general price level started downward in 1929 and the all-worsted trousering which reached 92½c. discouraged substitution. Conditions have again combined; this time higher prices with the inadequate family-purse. The result is revival of the manipulated worsted, and this construction is worthy of consideration even though the duration of its life in the suiting field hangs as we have indicated on the trend of price-buying power relationship.

Since certain well-established lines of tropicals are of cotton-warp construction, it is thought possible that existing prejudice might be overcome by the performance records of summer suits. Clothiers are not so sure, as they say men stand for many things in their warm weather tropicals which they would not tolerate in a wintertime garment. Clothiers will therefore probably continue to avoid close definition of the fiber content of their cheaper worsted lines.

In the spring suiting season just closed, competition with woolens in the $20 suits left a fair accumulation of the cheaper worsteds all along the line. Particularly the silver grays which were best sellers for the last two or three seasons. To come out right clothiers had to price such suits at $25, and the $5 additional proved a definite brake on easy movement. Clothiers probably will not be caught this way again and the moral is: watch the manipulated fabric a year from now.

There is another field in which cotton warp worsteds have a place all their own. This is the pants trade. Here the high limit for an ordinary pair of pants at retail is $3, for which range the all-worsted is now out of sight. Cotton warp lines at 50c. for 36 inch goods (or about 88c. on 6/4 basis) have the field to themselves except for the all-cotton trouserings which sell between $1 and $2 when made up.

In event that manipulated worsteds do meet with events that broaden their market in the next year or two, there has been some argument as to whether the cotton mill might not encroach on the men's wear field and snatch this trade even from the worsted mill that made its best efforts to offer saleable goods. Doubt has been cast on this development because the cotton mill has been accustomed to volume business. Most of them will not consider less than a 32,000 yd. warp run on a style and the 4, 6 or 8 piece runs which men's wear mills turn out are just not in the cotton mill's picture.

Whatever the eventuality, so market opinion runs, the men's wear mill will remain the producer of men's wear worsteds, though the percentage of manipulated goods will doubtless run higher if and when the upward price swing is resumed.

Manipulated Worsteds

38 × 10 repeats = 380 ends in section
380 × 15 sections = 5700 ends
5700 + 80 ends listing = 5780 total ends

In Fig. 8, which gives the weave and drafts for Fig. 7, circles indicate no thread and solid squares indicate cord. In reeding, one cord counts as two threads. The back of the cloth, which is all black, is a 1/8 warp-back satin.

Fig. 9 is reeded 14½ as marked on the draft at Fig. 10, 67 in. over all, and shot with 58 picks of 1/18 black worsted. Dressing pattern:

2/26 black cotton....	4	1	5	1	5	= 16
16s black with 80s white.....	1	1	1	1		= 4
4/26 black cotton cord.....	1				1	= 2
						22

22 × 16 repeats = 352 ends in section
352 × 15 sections = 5280 ends
5280 + 80 ends listing = 5360 total ends

Again circles indicate no thread; and solid squares, cord. The cord, being 4-ply, takes the place of two threads; therefore there are only five ends in dent where cord comes.

Fig. 11 is reeded 15½ as marked on draft at Fig. 12, 68 in. over all, and shot with 58 picks of 1/18 black worsted. Dressing pattern:

		× 6				
2/26 black cotton . .	8	1	9	1	9	= 78
16s black with 80s white	1	1	1	1		= 14
4/26 black cotton cord	1				1	= 2
						94

Fig. 4

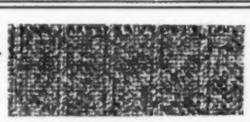


Fig. 5

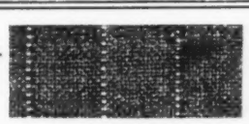
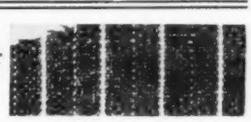


Fig. 6



94 × 5 repeats = 470 ends in section
470 × 13 sections = 6110 ends
6110 ends + 80 listing = 6190 total ends

Cord, being 4-ply, takes place of two threads, and there are only five ends in dent where cord comes (94 ends in 16 dents). Back of cloth, all black, is 1/8 warp-back satin.

Fig. 13 is reeded 15/4, 68½ in. over all, and shot with 58 picks of 1/18 black worsted. Dressing pattern:

2/26 cotton light-gray mix	2	3	15	4	12	4	16	3	1 = 60
Silk twist, black and white	1	1	2	2	2	2	1	1	= 12
									72

72 × 4 repeats = 288 ends in section
288 × 14 = 4032 ends
4032 + 80 = 4112 total ends
Weave and drafts for Fig. 13 in Fig. 14.

Fig. 15 is reeded 17 as marked in Fig. 16, 68 in. over all, and shot with 50 picks of 1/18 black worsted. Dressing pattern:

2/26 cotton black and white.....	13		13		= 26
2/26 cotton black..	1	2		1	= 4
4/26 cotton black cord.....	1			1	= 2
2/26 cotton 50% gray mix.....	1	2	2	1	= 6
					38

38 × 8 repeats = 304 ends in section
304 × 10 sections = 3040 ends
3040 + 80 listing = 3120 total ends

Fig. 17 is reeded 18/3, 67 in. over all, and shot with 58 picks of 1/18 black worsted. Dressing pattern:

2/26 cotton light-gray mix.....	12		13		= 25
2/26 cotton black.....		2			= 2
4/26 cotton black cord..	1			1	= 2
60/2 white silk.....	1	1	1	1	= 4
					33

33 × 12 repeats = 396 ends in section
396 × 8 sections = 3168 ends
3168 + 80 listing = 3248 total ends
Weave and drafts for Fig. 17 in Fig. 18.

Fig. 16

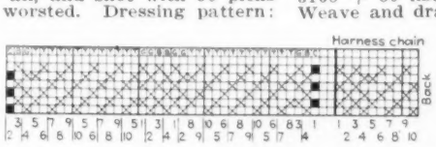


Fig. 15

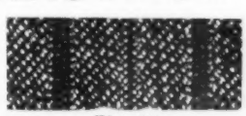


Fig. 18

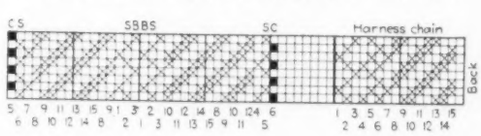


Fig. 17

Fig. 14

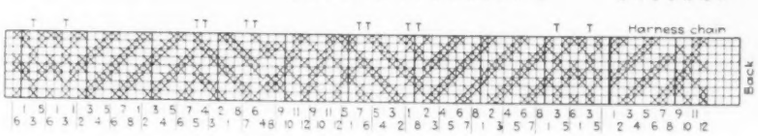


Fig. 13

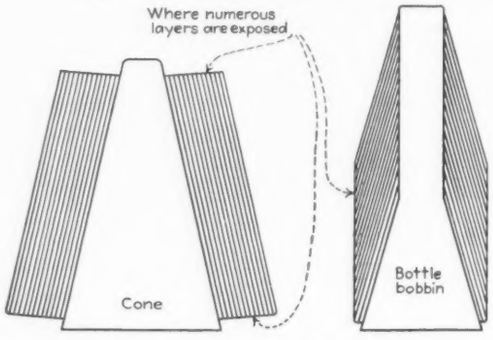
Of All Defects

IN UNDERWEAR KNITTING, THE MOST READILY AVOIDABLE ARE STAINS

By Louis G. Goldenberg

OF ALL the defects that eventually find their way into finished spring-needle, circular-knit underwear fabric, those most surely avoidable are stains, particularly such stains as are due to improper or careless handling of the yarn in the knitting room.

It cannot be emphasized too strongly that the yarn should be handled as little as possible. The ideal arrangement is for bobbins to be placed on trucks at the winding machines ready for the knitting machines or for the same thing to be done with cones as soon as their wrappers are removed. No amount of "dont's" could prevent the damage to the yarn by improper and unnecessary handling as effectively as the application of this really simple and efficient method.



Showing where damage affects greatest yardage of packaged yarn

Because of the way in which the yarn packages are built up, the greatest number of successive layers of yarn are affected in the case of a cone when the top or bottom yarn surface is damaged; and in the case of a bobbin, when the outside surface is damaged.

Cones can be seriously damaged in the very first operation, which is that of removing their wrappers. The paper should never be ripped from the top of the cone with the fingernails. Knots are always laid across the top of the cone, and one stroke of a fingernail can sever several.

The practice of placing cones or bobbins on the floor around the knitting machines leaves them open to the danger of being kicked around, or of having oil drip down on them in cases where they are placed under the drive side of the machine. A drop of oil on the top of a cone or the side of a bobbin which leaves a black stain of no more than ½ in. in diameter may result in 15 to 20 yds. of spotted cloth.

From the time the operator or knitter gets his cones until they are finally tied on the machine, they are in constant danger of falling to the floor. He may have waited too long before going for his cones and is in a hurry, so that cones will slip from his grasp. He may be overzealous and attempt to carry more than he is able, with the result that one cone will slip and all the rest follow. He may stack his cones too high on the machine and then accidently brush against them, knocking two or three to the floor. Or vibration of the machine, caused by a pulley out of true, bent shafting, crooked floor, or vibration of the building itself may cause one or more cones to fall and sustain serious damage. Usually the damage seems less than it actually is, and little attention is paid to it.

The yarn guides directly above the cones should be set high enough so that there is no danger of striking them when placing cones on the rack. This trouble is usually encountered when changing from small cones to jumbo cones without making a corresponding change in the position of the yarn guides.

When light shades are dyed, as is generally the case with underwear fabrics, it is of the utmost importance to keep the yarn and cloth spotlessly clean.

While the practice of placing cones on the machines is not condoned, the machines should be kept dry and clean so that if a cone is rested on it for a time the yarn will not become stained and also the operative's hands will not become soiled in working around the machine. Soiled hands naturally mean soiled yarn and soiled cloth.

Uncleanliness and improper oiling of machines and shafting are the greatest sources of stained yarn and cloth. Hanger boxes should not be filled to overflowing so that the shafting will throw off oil in all directions. Neither should waste be permitted to accumulate on the shafting, particularly near the hangers, as the waste will absorb oil and, when saturated, will throw it off to land on the cones or bobbins. This is a precaution which should be observed in the winding room as well as in the knitting room. A drop of black oil on a skein or in the center of a cone or bobbin will stain a great number of yards of cloth.

All knitting machines should stand perfectly level and firm. When a machine is not level, the oil will flow to the lowest point and usually find a way out, dripping on the cloth as it does so.

Those whose duty it is to keep the machines lubricated should be instructed that needles, sinkers, and bearings do not absorb oil. If it takes one drop of oil to form the necessary film on a particular surface, emptying an oil can on it will not leave it any better lubricated. The general opinion is that it is better to over-lubricate than to take a chance on under-lubrication. When this policy is practiced, the machines should be stopped and wiped thoroughly dry shortly after oiling.

Many a roll of cloth otherwise perfect is soiled and damaged when being removed from the machine. Carelessness causes it and only care can overcome it.

When cloth comes through stained or damaged because of frayed or cut cones or bobbins, it is then usually too late to do anything. It is repetition that should and can be guarded against.

A minimum of handling, cleanliness of hands and equipment, proper lubrication, and general carefulness will go a long way in bringing these imperfections down to a minimum.

●

This is the second of a series of articles by Mr. Goldenberg on defects in knit underwear fabric. The first appeared on page 89 of our April, 1934, issue.

Paternalism in Japan

◆ *Even this factual and rather casual presentation of the regimentation of Japanese cotton-mill employees makes almost unbelievable reading. . . . This is an extract from a study of the cotton piece-goods industry made by Vernon B. Ladd, a student in the Graduate School of Business, Stanford University.*

"EMPLOYERS CAN LOCK THE GIRLS EITHER IN OR OUT OF DORMITORIES"

THE cotton piece-goods industry of Japan is based on contract-labor similar to that of China. This persists because parents of the operatives want the direct opportunity to collect their wages. Eighty per cent of the labor supply of all the workers in Japan's cotton piece-goods industry are females aged 16 to 22 years. Most of these operatives are recruited from the agricultural farming classes. The cities' labor supply is insufficient.

With the desire on the part of their parents to obtain monthly remittances from their wages, the girl operatives are handicapped to strike for improvement in working conditions. Especially is this true, since the dormitories in which the girls are housed are operated by their immediate employers. They can lock these operatives out of the dormitories and thereby deprive them of the use of their belongings and place them in a perilous position. On the other hand, the employers have the privilege of locking the girls in the dormitories. Therefore, either method of locking the girls in or out of the dormitories places the employers in a superior position to have these operatives submit to factory labor and working conditions as they exist.

With the employers having the advantage to make their demands and with the parents of operatives eager to obtain remittances, the girls have little opportunity to become active trade unionists. There is a small number, estimated at 2%, of cotton-mill workers who belong to unions. These workers, however, have no security for continuous work. This insecurity has hampered the growth of the trade union in Japan. The hostility of the Japanese Government and the extraordinary orders given to the police in 1926-27 under the Peace Police Act of 1900, also prohibited the movement's growth.

However, according to Dr. S. Harada, the slow development of unionism is not due to governmental interference, but largely to three social drawbacks; namely, under-developed labor organization (which has no opportunity to develop), predominance of women in Japanese industries, and general poverty of the working class and necessity of earning more wages even at the expense of longer hours.

Although no legislation sponsoring unionism and no opportunity to organize a union exists, legislation regulating the number of hours of work, the age of workers, etc., was enacted into law in 1911. This piece of legislation was the first Factory Act, but it was not made effective until 1916, prior to which no labor regulations existed in Japan. Even then no specific age limits or number of hours of work were stipulated. Merely the word "minimum" was used without definition.

In 1924, the Japanese cotton piece-goods industry operated two 10-hour shifts per day for 27 working days average per month. In 1921, 21% of the factories were operating on an 8-hour day as compared with 12% on the same basis in 1919. In 1926, the Factory Act was extended to include factories employing 10 to 15 operatives not included in the old law. The minimum age for workers was raised to 14. Working hours were reduced from 22 to 20 per day in two shifts. Privileges were given to women workers during childbirth. Night work was defined as from 10 p.m. to 5 a.m. Actual enforcement of this labor law was postponed until 1929.

In 1929, further legislation was enacted to reduce working hours to 17 per day. The abolition of night work was legislated from July 1, 1929. This change was not marked as might seem, since, for over two years previous, the Japanese mills had averaged a 23% curtailment, but later a 15% reduction basis was unanimously adopted, making working hours 8½ per day, or 28×17 (2 shifts) or 476 working-hours per month.

Let us now look into the current picture. There has been progress since 1929. The Japanese mills are up-to-date. They have bath tubs for the workers to use daily. Inhalation apparatus equipment is provided to remove dust from operatives' throats. In the mills, the workers wear uniforms including a cap. Forewomen direct the operatives from a window sash by blowing whistles. No loitering is permitted. Ten looms are attended by one girl and, on the average, there are 5½ looms per operative. The work-day is 8½ hours long per shift and there are two shifts daily. Employers set the wage scale themselves.

Systematic control prevails not only at the mills, but also during the operatives' period of leisure. Systematic meal-time periods are provided. The girls are scheduled to sleep eight hours each day. Two hours daily are set aside for school attendance. At the school they are taught reading, writing, and arithmetic, flower decoration, tea ceremony, fancy work, and cooking. Some mills provide gymnastic drills every evening. Time studies appear to have been made for every act and movement the girls chance to make.

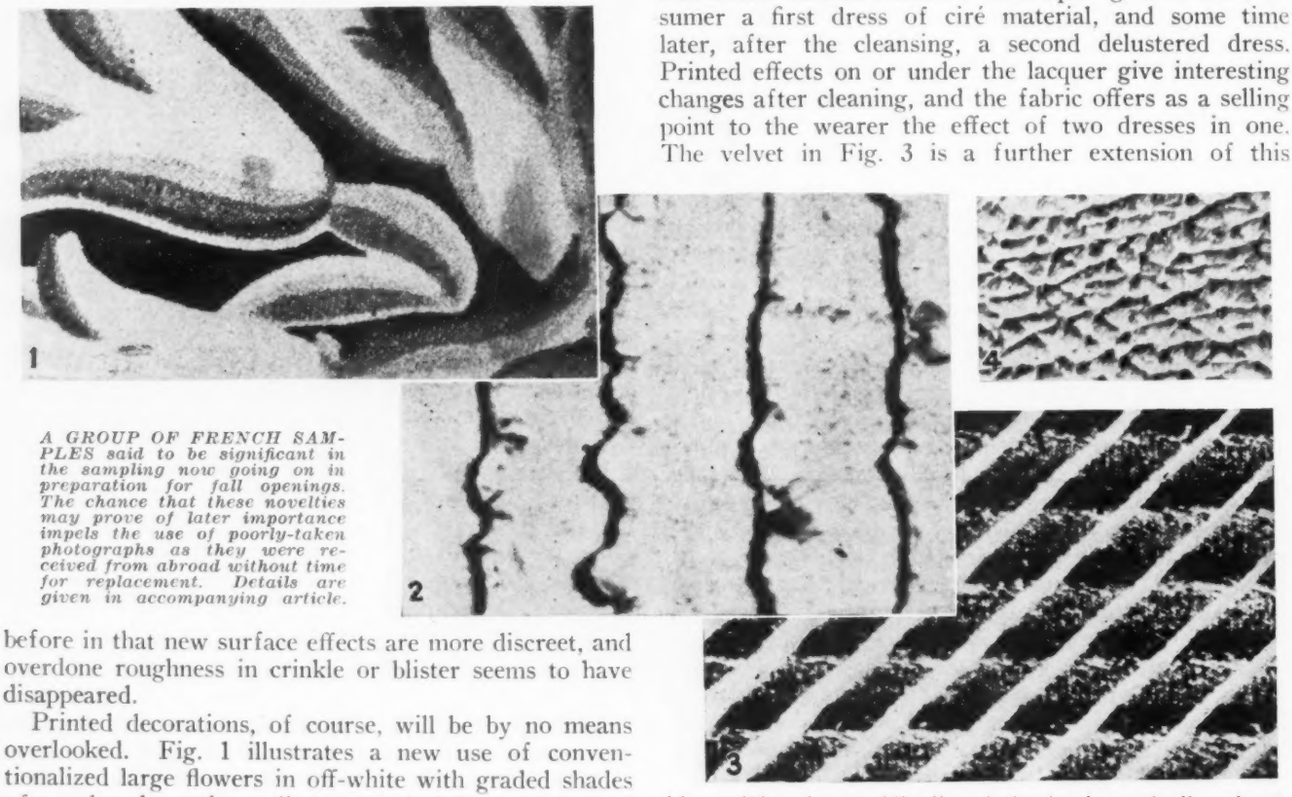
In spite of the numerous sanitary privileges that are far superior to those of the farm, the labor-turnover is large. The mills have to maintain constantly a squad of forewomen to teach newcomers their work. Labor that is trained is scarce in Japan and competition among employers for it is keen. The labor-turnover problem is not surprising, for the workers are discontented though submissive. Observers accustomed to the systems in other countries wonder whether the Japanese system can continue to dominate workers' private lives.

Printed Krinkles

FRENCH INTEREST IN TEXTURES SHOWN IN NOVELTIES FOR FALL SEASON

By Richard Flint
Cagnes s/Mer, France

INTERESTING new fabrics of silk or rayon, or of mixtures, have been favorably accepted by the Paris couture houses, and will be shown in the made-up state at the beginning of the fall season. In this early sampling period it is difficult to state the full trend of fabric fashion for the evening season. It is, however, possible to give two pointers: The number of new printed fabrics is surprisingly small as compared with new woven effects; and there is unmistakable continuance of interest in surfaces and textures. The novel fall ranges differ from the fabrics which were selling before in that new surface effects are more discreet, and overdone roughness in crinkle or blister seems to have disappeared.



A GROUP OF FRENCH SAMPLES said to be significant in the sampling now going on in preparation for fall openings. The chance that these novelties may prove of later importance impels the use of poorly-taken photographs as they were received from abroad without time for replacement. Details are given in accompanying article.

Printed decorations, of course, will be by no means overlooked. Fig. 1 illustrates a new use of conventionalized large flowers in off-white with graded shades of coral red on the well-covered dark-blue ground of a heavy delustered crepe-de-chine. Another silk crepe, with feathers in multi-color print on ivory ground, will meet the demand for bizarre designs. Relief prints imitating raised surface effects are much favored, and will appear in a multiplicity of styles. Fig. 2 is a silk rayon mixture crepe, the irregular vertical stripe motif thrown into relief by a printed shadow-effect. Prints are also used to give the impression of crinkles. The current summer is a good print season with designs seeming to draw their inspiration from every conceivable object under the sun. Designers have been casting about for something new and the ready acceptance of relief prints gives an indication as to the next swing.

A typical instance of the trend toward surface interest is a matt silk crepe with irregular knotty grains produced by novelty yarn. A good deal of importance will be given also to metal threads in all kinds of fabrics, such as silk crepon with silk and gold filament mixture yarns in the filling. Another kind of surface appears in a heavy but finely-ribbed silk crepe, decorated with imitation embroidery in rayon. Still another fabric uses bayadere stripes in chenille yarns on a ribbed silk ground.

Velvets will loom large in the fashion picture of fall and winter, and particularly novelty velvets. One, on a dark red silk-voile ground, uses a medium gray rayon pile in stripes which partly cover intersecting gold threads. Fig. 3 shows a lacquered and printed matt all-rayon velvet. The lacquer is an outgrowth of solid ciré finish, but in dry cleaning such a finish dissolves entirely. Dull-luster fabrics treated with lacquer give to the consumer a first dress of ciré material, and some time later, after the cleansing, a second delustered dress. Printed effects on or under the lacquer give interesting changes after cleaning, and the fabric offers as a selling point to the wearer the effect of two dresses in one. The velvet in Fig. 3 is a further extension of this idea. The short stiff pile of the horizontal ribs pierces through the thin ciré film which is printed with clear colored diagonals. In this state the velvet has been photographed. On dry cleaning, the printed diagonals disappear from the pileless bare ground, but leave traces on the pile which suggest broken diagonals.

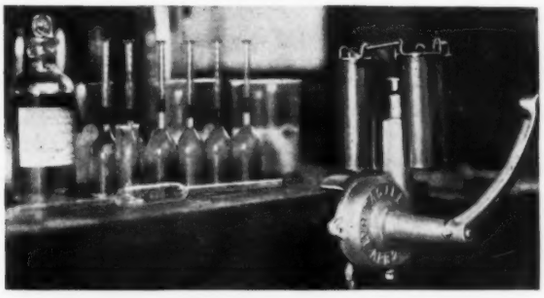
Fig. 4 is an all-rayon fabric called "Peccary Hide" which is remarkable in that the design is achieved more by the use of matt and luster yarns in contrast than by irregularity in the weave.

There seems to be some partiality for fabrics which masquerade as woolens. Such lines in current samples include a coarse silk-and-rayon fancy crepe, and a spun-rayon fabric with a double-check effect.

The Dairyman's Test

BORROWED BY SILK AND RAYON THROWSTER TO FIND TAKE-UP VALUE OF SOAKING SOLUTIONS

By Herbert C. Roberts



Apparatus set up for testing silk and rayon soaking solutions

AT FIRST thought the methods employed in the throwing industry seem to be far removed from those followed in the dairy industry. Nevertheless, the throwster has been able to borrow from the dairyman a simple, but accurate test which enables him to determine the degree of exhaustion or take-up value of silk and rayon soaking solutions. That is, by means of the same test which the dairyman uses to tell the percentage of butter fat in milk, the throwster can estimate the approximate boil-off of a lot of silk while it is going through his plant or he can calculate the quantity of oil needed to replenish standing baths employed for soaking rayon.

The equipment, which entails an expenditure of less than $10, consists of a Babcock milk tester. This apparatus can be obtained from any of the larger laboratory supply houses, and it comes complete with bottles, measuring tubes, acid, and centrifuge. The regular milk-testing bottles which measure the butter-fat content of milk between the limits of zero and 10% should be used.

To make a test of a soaking solution, one draws from the soaking bath a sample by means of the pipette provided with the outfit. This pipette holds 17.6 cc. The sample is placed in the bottom of one of the test bottles, and 17.5 cc. of sulphuric acid sp. gr. 1,825 is poured slowly into the neck of the bottle. Care must be taken to avoid spilling or dropping of the acid on the skin or clothing, as it will produce burns and make holes in fabrics. The acid causes the solution to heat up, and at the same time cracks out the fatty matter. Warm water is now run into the bottle until the solution reaches well up the neck of the bottle, at least to the No. 1 or No. 2 mark.

Two samples, prepared in the same way and used as a check on one another, are placed in the opposite sides of the centrifuge to balance it properly. The handle of the centrifuge is then turned at the rate of 100 r.p.m. for 4 or 5 min. until all the fat is thrown into the neck of the bottle in a clean, clear layer. (If the soaking materials contain coconut oil or neatsfoot oil with a high melting point, it may be necessary to place the bottles in a beaker of hot water to liquefy the fatty matter and facilitate a clear separation.) When the fat is all in the neck of the bottle, it is measured by difference; that is, if the top of the fat layer is on the 2.6 mark and the bottom layer is on the 5.9 mark, the percentage of fat in solution is 5.9 minus 2.6, or 3.3%.

The exhaust solution is tested in the same manner as the original solution. If the exhaust of soaking solution shows that there is 0.2% fat, the take-up of the solution is $\frac{3.3-0.2}{3.3}=93.9\%$.

As a rule, silk soaking materials contain about 80% of fatty matter; thus if the formula calls for 16 lb. of soaking oil, the total fat in the soaking bath would be 12.8 lb. If the silk took up 93.9% of this amount, we would expect to find the silk increased in weight very nearly 12 lb.

However, in any soaking operation some of the gum is removed from the silk, even if pure water is used. It has been calculated that the loss in weight of silk soaked in pure water amounts to 2 lb. per 100 lb. of silk; therefore the net gain in weight of silk would be 10 lb., and not 12 lb. In other words, if the raw silk had 17% boil-off and it was soaked in the manner mentioned above, the thrown boil-off would be approximately 27%.

When the throwster is using one of the soaking machines, it is convenient to run a test of the soaking bath as described above by taking samples from the machine at intervals of 10 or 15 min. In this way it is possible to establish the rate of exhaustion on the machine of any given oil. Here again, it is essential that the test be run in duplicate or a blank bottle filled with water be placed in one pocket of the centrifuge in order to counterbalance it during the test.

When rayon-crepe soaking solutions are tested, it will be found that the take-up is only 20% to 35% of the original amount of oil used. By determining the degree of exhaustion of the bath, one can calculate how much oil must be added to bring the bath up to its original strength for soaking subsequent lots. The loss of gelatin from rayon-crepe soaking baths is directly proportional to the volume of water taken up by the yarn; therefore the amount of gelatin added for subsequent soakings is based on the quantity of water required to bring the bath to its original volume. For example, if the original formula contained 6.5 lb. of gelatin to 65 gal. of water, and after soaking there remained 50 gal. of solution, before the next lot was soaked it would be necessary to add 15 gal. of water and 1.5 lb. of gelatin plus the amount of soaking oil as determined by the Babcock test.

LOOKING BACK FOR FIRST SIX MONTHS OF 1934 ON PROBLEMS OF

Southern Labor

(*From* TEXTILE WORLD'S *Southern Office*)

THROUGHOUT January, February and part of March, southern textiles mills ran steadily, orders were plentiful and labor disturbances relatively few. Then, almost without warning, officials of the United Textile Workers of America raised a great hue and cry at Washington, charging cotton manufacturers with flagrant violation of the labor provisions of the cotton textile code, and exploitation of the worker. Manufacturers immediately challenged the truth of these charges, and a newspaper controversy began, which raged for days. Gradually, verbal hostilities subsided, and labor conditions resumed appearance of stability.

Then, apparently without rhyme or reason, sporadic strikes—mainly without disorder—began to flare up in various parts of the section. While mediators were striving to settle these strikes, U.T.W. membership drives continued unabated, and with a certain amount of success. On June 4, when the "general strike" failed to materialize, it became obvious that the union had made a slip. Southern mill officials admitted that such a strike at this time would have been welcomed as an excuse to close the mills. On June 16, the Cotton Textile National Industrial Relations Board met with the southern States boards at Greenville, S. C., to review and coordinate the work of these boards in the South.

The foregoing is a brief résumé of the outward manifestations of labor union activity in the South during the last several months. Beneath the surface, the situation is perhaps even more complicated than that in the New England wool industry as reported last month.

It is interesting to note (1) the causes for greatly increased labor union activity in the South during the last several months; (2) the chief subjects of controversy between manufacturers and U.T.W. officials; (3) opinions as to ultimate outcome of this attempt to unionize the southern textile worker.

Opposing theories as to underlying causes for the greatly increased labor union activity are advanced:

Manufacturers' Theory: During the so-called normal years preceding 1929, labor unions in the centralized industrial localities of the North neglected the sparsely settled South, with its comparatively low-wage textile worker, as an unprofitable source of revenue. The few half-hearted attempts to organize the South failed, almost at the outset, because of (1) the passive attitude of the union and (2) a strong sectional prejudice against the northern organizer. Shortly after the advent of the NRA, the textile industry made its now historic recovery to 1929 levels of wages and employment. When the capital goods industries of the North failed to make a correspondingly quick recovery, organized labor began to look southward for new members. Profiting from past mistakes, the passive attitude regarding the South was dropped, and the present aggressive campaign, employing only native organizers, was launched.

Labor Leaders' Theory: In the past, southern manufacturers immediately "fired" any worker suspected of affiliation with a labor union. Under such conditions, it was hopeless to try to organize the worker, who lived in fear of losing his job. But now, with the "collective bargaining clause" an integral part of NRA, the manufacturer is forced to recognize the right of the worker to organize. Consequently, there has been increased union activity in the South for the last year.

Although the southern textile industrial relations situation is obviously very complicated, there *is* one point which is perfectly clear: *Not one shred of cooperation, sympathy or mutual understanding exists between southern manufacturers and textile labor organizers!* Even the most liberal of the manufacturers, who at one time looked with tolerance on the union, are becoming disgusted with the antics of U.T.W. officials. Most manufacturers maintain that they have no objection to workers joining a union; but they emphatically state that "radical outsiders" have no business "coercing and persuading" the workers into joining an organization, the details and policies of which they (the workers) do not understand. The writer heard one organizer make a statement before 250 textile workers that "98% of the southern manufacturers are chiseling under the cotton textile code." Such statements, continually emitting from both parties, show no touch of friendliness.

Coming to the second point raised above, the chief bone of contention between manufacturers and U.T.W. officials is the 25% reduction in weekly wages due to the summer curtailment program. Additional subjects of controversy are (1) increases in machine-loads ("stretch-out"), (2) discharge of workers for membership in union, and (3) dissatisfaction of U.T.W. officials with certain members of industrial relations boards.

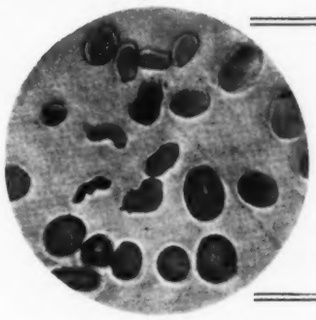
As to U.T.W. strength in the South, only an audit could determine the actual number of members. Impartial observers estimate that from 30 to 40% of the textile workers are members in good standing. Manufacturers discount this estimate; labor leaders declare the number to be much higher.

As to the final point, the future of organized labor in the South—it is impossible at this early date to prophesy what the outcome will be. Since the "general strike" failed to materialize, conditions have been unusually quiet, and it is reported that many operatives are dropping out of the union. Non-union workers, in mills closed by strikes, stated openly last month that they were anxious to go back to work.

Until June 4, the union was undoubtedly making headway in the South. But since "McMahon's folly," organizers are finding the going much harder, and manufacturers freely predict that within a year all signs of union activity will have died out. Less partisan observers, however, contend that the union will not be dissuaded so easily from its determination to organize the South. If there are to be labor disturbances on a big scale, such undoubtedly will take place in the fall when business picks up again.

Acetylated Cotton

By E. Chippindale



COMBINES STRENGTH AND STRUCTURE OF COTTON WITH DYEING PROPERTY OF ACETATE

◆ *At a recent meeting of the Manchester (England) Section of the Society of Dyers & Colourists, Mr. Chippindale described the manufacture and properties of a new type of textile produced by the low acetylation of cellulose fibers. In the following article is given a resumé of Mr. Chippindale's remarks.*

UNTIL Rheiner and other chemists of the Sandoz Chemical Works found that they were able to obtain cellulose monoacetate and diacetate by immersing cellulose directly in an acetylating mixture, it had been considered that it was impossible to produce these products by direct acetylation. The work of these chemists, however, has resulted in the development of a commercial process which yields yarns having the strength and structure of cotton combined with the dyeing properties of cellulose acetate. Also it has led to some consideration of the acetylation of viscose rayon yarn which is unaffected by prolonged boiling in water and is insoluble in organic solvents.

In the case of cotton, the low-acetylated fibers appear to be unaltered physically, both in the acetylating mixtures and in the dried condition. They possess the same tensile strength and elasticity, and show only a somewhat harder handle. The characteristic structure of the cotton fiber is preserved entirely. The only noticeable difference is that the low-acetylated fibers appear to be slightly more rod-like than the original cotton fibers. In order to standardize the process of esterification, and to give the measure of control necessary for work under commercial conditions, it is essential that the preparatory process proceed on uniform lines.

Suitable preliminary treatment is as follows: kier-boiling for 9 to 10 hr. in 2 to 3° Tw. caustic soda under a minimum pressure of 20 lb. per sq.in., washing, chemicking in a liquor containing not more than 2 to 3 g.p.l. available chlorine, souring, and soaping. In the case of mercerized yarns, the caustic kier-boiling operations must follow the mercerizing process. If dyed yarns are subjected to the acetylation process, they must also be kier-boiled in the same way and, if necessary, bleached before being dyed.

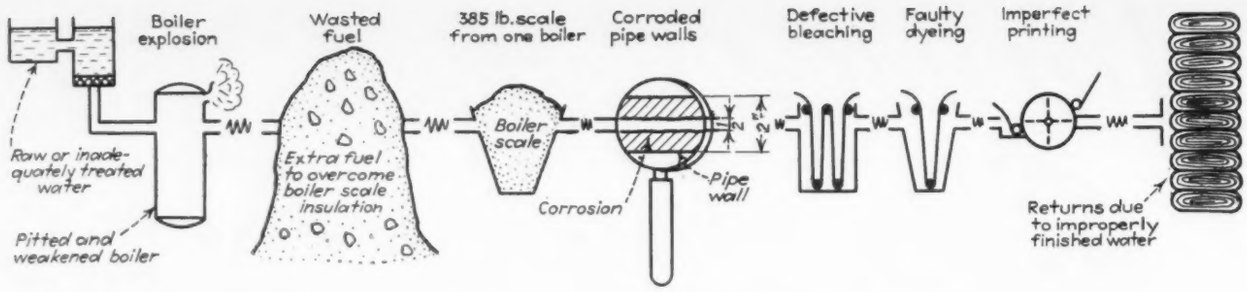
The composition of the mixture and the temperature at which the acetylation is carried out must be chosen so that the activity of the mixture is substantially moderated as compared with that necessary for the production of the triacetate. In any case, the activity is of such an order that the desired acetylation, even only to the monoacetate stage is affected only after a considerable duration of time; e.g., 20 hr. or even longer. The acetylation may be accelerated by any catalysts which have been proposed for the preparation of cellulose triacetate, with the restriction, however, that the quantity of the strongly acting catalysts be diminished and carefully controlled. Further details may be found in G. P. 525,084 and 530,395; E. P. 280,493, 314,913, 323,500, 323,515, 323,548 and 324,780.

During the acetylation process, the affinity of the products for direct cotton dyes declines rapidly at first and, as the process proceeds, becomes continuously smaller. When the monoacetate stage is reached, the affinity is practically nil.

When the dried fiber is entered into a dyebath, insufficient swelling occurs to allow the amicrons of the direct cotton dyes to penetrate into the fiber. This applies not only to direct cotton dyes, but also to vat and sulphur dyes. Strong swelling agents, however, (e.g., solutions of aliphatic carboxylic acids and particularly aqueous solutions of formic or acetic acid) succeed easily in activating the monoacetylated fiber, and it then can be dyed with cotton dyes. On the other hand, low-acetylated fiber celluloses are dyed very easily with cellulose acetate dyes, and only a comparatively low acetylation is required in order to obtain very good dyeing properties, including even penetration as shown in photomicrograph above. These products, therefore, are the only fibers that can be dyed both with direct cotton dyes and with cellulose acetate dyes.

Low-acetylated cotton yarns prepared in the manner described have been registered as Cotopa (non-lustrous) and Crestol (lustrous). As a result of conversion, the weight of the bleached yarn is increased not less than 22%, without shrinkage in length, and the products can be woven or knitted with no more difficulty than is experienced with ordinary cotton yarns. In common with cellulose acetate, they should not be subjected to any warm alkaline treatments; they can be scoured satisfactorily, however, in a solution of neutral soap, and also can be subjected to high temperatures without risk of injury. No deterioration on storage occurs under normal conditions.

Cotton yarn prepared in the manner already described may be dyed with selected substantive, vat, and sulphur dyes, and then submitted to the esterification process. The fastness properties of such yarns are very materially increased. Direct dyeings, which ordinarily are not fast to washing, boiling, or chlorine, are improved to an extraordinary extent in these respects after esterification. Fabrics containing the new yarns can be mercerized successfully, good results depending on rapid and continuous processing under efficient supervision and with the observation of a few simple precautions.



MAJORITY OF RETURNS IN FINISHING CAN BE AVOIDED BY PROPER TREATMENT OF RAW WATER

By Graham Fisher
Chemist, Union Bleachery
(in conjunction with TEXTILE WORLD'S *Southern Office)*

IT HAS been estimated that more than 60% of the returns encountered in bleaching, dyeing, and finishing plants are due, directly or indirectly, to the use of raw water or water which has not been treated properly. Rust stains, oil stains, insoluble soap resists, faulty bleaching, sad or dull shades on dyed goods, and tendered fabrics are a few of the defects which can be traced to improperly conditioned water. Yet only too often the same bleacher, dyer and finisher who insists that the commercial chemicals he uses be as nearly suited to his needs as money can buy, gives little thought to the chemical which is most important to him and which he uses in the largest quantity.

Although much has been written about the necessity for pure, soft water in textile processing, the general tendency is to underestimate the damage which is liable to result from impurities in the water. It is the purpose of this article, therefore, to consider briefly those impurities which cause the greatest harm and to point out the benefits which follow their removal. At the same time, an attempt will be made to correct some of the prevalent misconceptions in regard to water-purification problems.

Iron, the dread of all bleachers and dyers, occurs in raw water as the bicarbonate salt. If the natural acidity of the water is high, iron may be dissolved, not only from native terrain, but also from discarded metal implements, buckets and pipes; in fact, from any exposed iron surface over which the water flows. In one plant, the water was perfectly free from iron until it entered the filter beds. There, iron was picked up from rakes used to stir the sand as the beds were washed.

If the water manages to get through the water conditioning plant with the iron unremoved and enters a kier, trouble will result. When the water in the kier is made alkaline with caustic or silicate, iron will be precipitated as ferric oxide and deposited on the cloth as reddish brown rust stains and in smaller invisible quantities. Iron, if not detected, is liable to cause oxycellulose in the cloth during any hot alkaline treatment which may occur in kiers or other equipment of the plant.

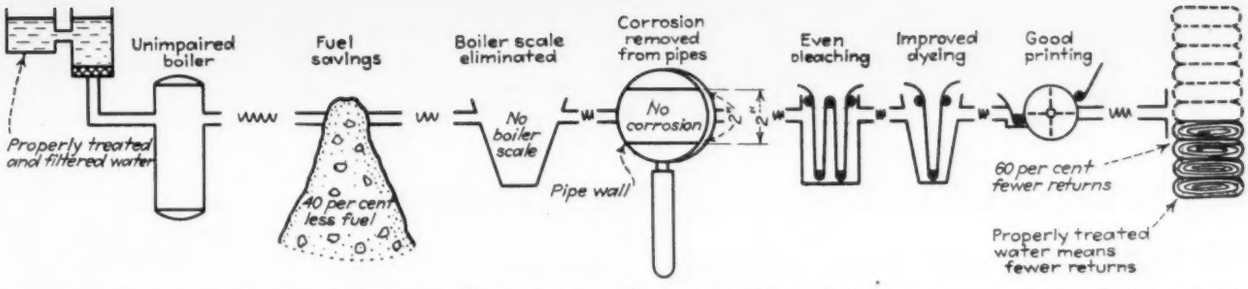
If the iron is present in extremely minute quantities and is too generally dispersed to cause oxycellulose, it will still cause considerable difficulty in the plant. One of its troublesome characteristics is to cause saddening or dulling of the color of a dyed material. This cannot be corrected satisfactorily by stripping and redyeing; and the iron must be removed from the cloth. Another of its damaging habits is to cause the appearance of circular stains on goods which are finished in the white and put in storage. These stains become darker as the cloth ages.

Ferric oxide is an extremely active catalyst which causes the decomposition of hydrogen peroxide solution. Therefore the peroxide bleach is impossible if there are any traces of iron in the water. Absolute freedom from iron is necessary for proper bleaching, dyeing, and finishing; and it is far less expensive to remove iron than to pay for damages it causes.

Turbidity may be defined as the suspended matter in water which obstructs the passage of light. This suspended matter, if allowed to enter the plant in the water, will result in such damage as mud stains on cloth, scratched rollers, clogged conductors, etc. Turbidity also carries with it those chemicals which cause hardness and acidity.

Hardness is due to the presence of calcium, magnesium, and aluminum salts which are dissolved from the terrain through which water flows. In addition, aluminum is often added to the water by improper coagulation of the floc in the settling basin. These impurities cause soaps to be precipitated in the goods in the form of heavy, insoluble, metallic stearates, necessitating the use of increased quantities of soaps and oils, and thus adding to the operating expense. Furthermore, the insoluble calcium, magnesium, and aluminum soaps precipitated in the goods give rise to resists in dyeing and printing. Other defects due to hard water are stains and odors which appear in the cloth when the metallic stearates break down upon being heated.

Algae are low forms of plant life which are prevalent in practically all raw water. Algae vary in size from invisible single particles to great mats which may coat the sides and bottom of the reservoir and contaminate the entire water system. Unless they are removed from the water, algae will give a great deal of trouble by getting into the filter beds and subsequently into the plant. The small growths contain an oily substance which may be deposited in the cloth by action of the caustic in the kier. If it gets in the pads and mangles,



this oil will be pressed into the cloth and will show up later as a resist.

A common misbelief is that a thick scum of green algae will serve as a water filter mat. For a short time an algae mat will serve as a very good filter; but soon some of the particles begin to coagulate and solidify in lumps, some get in the filter sand and lower its efficiency, and some get into the plant.

A peculiar fact about algae is that although they grow and thrive in the summer, they do their damage in the winter. The reason for this is that the cold water (below 50° F.) will kill or weaken algae to such an extent that they will loosen their hold on the sides of a pipe or basin and be carried into the plant where they do their damage.

Absolutely pure water containing no dissolved solids, liquids, or gasses has a pH of exactly 7. Unfortunately such water is never available in quantities for commercial use. One of the most prevalent misconceptions in finishing plants today is that a commercial water with a pH of 7 is neutral. Such is practically never the case. Water may have a pH of 8 or 6 and still be neutral. This phenomenon is due to the presence of buffering substances, such as dissolved salts, picked up from the soil or coagulating basins.

The chief cause of acidity in water is carbonic acid, which is produced by dissolving carbon dioxide from the air. Even rain water is acidic from the carbon dioxide in the air. Carbon dioxide has a stabilizing effect on turbidity, iron, etc., forming a protective adsorbed colloid which tends to support the particles to which it becomes attached. Acidity is usually present when the first gush of water from a pipe, which has been closed for some time, is dirty.

Acid water reacts differently in the cold- and in the hot-water systems. Cold acid water, of which rain water is an example, will pick up hardness in the form of calcium and magnesium salts from any cement or similar substance with which it comes in contact. The damages resulting from hardness have previously been described. Cold acid water will also attack and corrode any exposed iron with which it comes in contact. Thousands of dollars are tied up in pipes, conductors, machinery, standpipes, etc., in every plant and village in the land. Many a 2-in. pipe line has been found to be so corroded that a pencil would not slip into it. Boilers are also corroded by acid water in the same manner as are pipes. Fortunately this corrosion can be prevented; and by proper treatment, the rust can be entirely eliminated where it already has a foothold in pipes and conductors.

In boilers and tubes, hot acid water will form scales and tubercles ranging from the size of a pinhead to a hen's egg. This deposit is composed of a hard, glassy, waterproof substance, usually consisting of overlapping layers of sulphates and carbonates of calcium, magnesium, and aluminum. It has been found that scales and tubercles act as extremely efficient insulators. Thus, it has been estimated that 1/50 in. of carbonate or sulphate scale is sufficient to cause a loss of 8% of the applied heat; 1/32 in. will cause a loss of 12%; 1/16 in., a loss of 16%; and as the thickness increases, the loss of heat increases in an even greater ratio.

Hot acid water, which destroys the walls of a boiler and its tubes by a pitting action, often camouflages its insidious work to a certain extent by filling and building. That is, a pitting action is continually taking place beneath the hard tubercle, while the tubercle increases in size. This action often goes on until the boiler shell or tubes become so weakened that they give way or blow up, endangering the lives of the operators. In one plant 385 lb of scale and tubercles was removed from one boiler. After this clean-up, one-third to one-half less coal was required to fire the same boiler.

Although it seems impossible to the uninitiated, water can be filtered clearer than ordinary distilled water. The reason for this is simple. Gases, such as carbon dioxide from the atmosphere, along with other impurities from glassware, etc., may be found in supposedly pure, distilled water. The further water is from the true neutral point (as distinguished from a pH of 7), the further will be its distillate from the clarity of chemically pure water. Thus, acid water in the boilers will produce acid steam.

It should be noted that although water may be entirely free from iron upon entering the boiler, the steam, if it is in an acid condition, will invariably pick up iron from the pipes. That is, acid steam after it leaves the boilers will pick up iron as magnetic oxide of iron and will deposit it further along to cause trouble. Where this steam comes in contact with process work, such as open jets in dye vats, iron will be deposited in the cloth, causing resists and other difficulties.

Water, when properly conditioned, will contain no iron, no mud or grit, no hardness, no organic matter, and no acidity. The cost of conditioning ranges from 2½ to 7c. for 1,000 gal.; the cost usually stays near the bottom limit when the plant employs a water specialist, and skyrockets toward the top when a man without proper training is placed in charge of the work. The volume of water consumed daily in many of the larger finishing plants runs into the millions of gallons. It is evident, therefore, that it is false economy to give the responsibility for conditioning to an untrained operative who may blindly shovel large quantities of chemicals into the water.

The harmful effects of raw, impure water are shown graphically in Fig. 1; and in Fig. 2 are illustrated the advantages which accrue from the use of water which has been properly treated. The savings in fuel, chemicals, and maintenance and replacement costs of equipment, together with the reduction in the amount of seconds and returns, will more than counterbalance the expense for treating the water.

[A subsequent article will describe the methods employed for purifying and softening water used in the finishing industry.—*Editor.*]

Identification—

RAPID CHECK ON TEXTILE FIBERS BY USE OF POLARIZED LIGHT

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USE of polarized light is steadily becoming more popular in the study of cellular and fibrous materials, and a polarizing microscope is now standard equipment of many laboratories. By use of this instrument, it is a simple matter to determine the index of refraction of a fiber for light vibrating in a plane parallel or perpendicular to its length. Herzog has recorded the indices of refraction of flax, cotton, natural silk, and some of the synthetic fibers. Since there are sufficient differences between these values to make them useful as properties of differentiation, it was deemed advisable by the present authors to extend the investigation to other commonly used textile fibers and to test the practicability of the method in general. These studies have shown that a combination of refractive index methods with a general microscopic examination provides a rapid means of fiber identification.

The fiber is mounted in a liquid of known index of refraction and placed on the stage of a microscope where it is illuminated with light passing through a "polarizer." Instead, the same results may be obtained by using unpolarized light for illumination and observing through an "analyzer." If axial illumination and an objective of low aperture are employed, the fiber is bounded by a thin, white band, called the Becke line. When the focus of the microscope is raised, this band moves toward the medium of higher index of refraction.

Oblique illumination may be employed instead. In this case, the fiber will be shaded on the side opposite to the source of the oblique light when it has a higher index than the surrounding medium and on the same side when lower. When a substage condenser is used and one side of its aperture is screened, the field becomes darkened on one side and the fiber becomes shaded on the same side as the shadow in the field if it has a higher refractive index than the surrounding liquid, and vice versa.

After the comparison is made with the fiber parallel to the plane of vibration of the Nicol prism, either the fiber or the prism is rotated 90°, and the comparison repeated with the fiber perpendicular to the plane of vibration.

Since the Becke line method is especially adapted to objects having nearly perpendicular sides, and the oblique illumination method to objects of lenticular cross-section, the latter is usually preferable. This is especially true if the microscope is equipped with an auxiliary condenser to give strongly convergent light.

In most cases a difference of refractive index of about 0.0025 is easily detected. Therefore, if comparisons are made successively with liquids whose indices vary by this amount, this precision can be obtained, provided there is adequate temperature control. However, since this precision is unnecessary for the differentiation of most fibers, temperature control is uncalled for. After a little practice, the intensity of the shading at the fiber-liquid boundary serves as a guide to which liquid should be tried next, thus eliminating all but a few immersions. Furthermore, the investigator usually has some idea about the nature of the fiber and will pick appropriate liquids.

In this investigation a chemical microscope was used. Liquids were selected from the set recommended by Chamot and Mason ("Hand-book of Chemical Microscopy," John Wiley & Sons). Their indices were checked before use with an Abbé refractometer. No temperature control was employed, since it was desired to test the suitability of the method for rapid identification. An ordinary tungsten-bulb desk lamp supplied illumination. Samples of each fiber were obtained from more than one source. The results are given in Table I. It will be noticed that all of the fibers listed can be distinguished from one another by measuring their refractive indices except members of the pairs: wool and mohair; flax and ramie, and mulberry silk and wild silk.

As a further means of preliminary classification which tends to decrease the number of immersion liquids tried, the colors these fibers exhibit when viewed between crossed Nicols are recorded in Table II.

Since the polarization color produced depends on the thickness of the fiber as well as its birefringence (difference between its two indices of refraction), it is obvious that the color will depend somewhat on the source of the fiber. In Table II the colors refer to Newton's color scale. These were determined with a quartz wedge according to the method described by Chamot and Mason in the handbook previously cited.

TABLE I—Refractive indices of common textile fibers

Fiber	Index of Refraction: Plane of Vibration Parallel to Length	Index of Refraction: Plane of Vibration Perpendicular to Length
Cellulose acetate	1.480	1.476
Viscose rayon	1.544–1.548	1.529–1.533
Wool	1.554–1.556	1.533–1.548
Mohair	1.554–1.556	1.533–1.548
Cuprammonium	1.556–1.567	1.529–1.533
Nitrocellulose	1.556–1.567	1.521–1.529
Jute	1.567–1.580	1.521–1.529
Cotton	1.567–1.580	1.533–1.548
Manilla	1.580–1.583	1.521–1.529
Flax	1.583–1.593	1.521–1.529
Ramie	1.583–1.593	1.521–1.529
Mulberry silk	1.583–1.593	1.533–1.548
Wild silk	1.583–1.593	1.533–1.548

Note: The recording of only one value indicates complete disappearance of the fiber in the liquid used.

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TABLE II—Polarization colors produced by common textile fibers

Fiber	Color
Cellulose acetate	Grayish white (1st order)
Cotton	1st-order yellow, 2nd-order blue at twists
Cuprammonium	1st-order yellow
Flax	Gray to 3rd-order colors (depending on subdivision of fiber)
Jute	Gray to 4th-order colors
Manilla	Gray to 2nd-order blue
Mohair	Gray to 1st-order yellow
Mulberry silk	1st-order yellow
Nitrocellulose	1st-order yellow to 2nd-order blue
Ramie	1st- and 2nd-order colors
Viscose rayon	1st-order yellow
Wild silk	Gray to 2nd-order blue
Wool—fine	Gray
Wool—coarse	1st-order yellow

By R. H. Smith
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Rules Must Vary

CUT-AND-DRIED METHODS HAVE NO PLACE IN DYEING SILK HOSIERY

THERE is no cut-and-dried method of dyeing silk hosiery. One mill may follow a certain procedure and obtain satisfactory results. Another mill, even if it is only across the street, may find it impossible to use the same process. Again, the methods employed by any one company must be varied from day to day to suit the demands of the trade and the particular type of goods being handled. It is difficult, therefore, to formulate any hard-and-fast rules for the hosiery dyer; but it is possible to offer suggestions which will guide him in his search for the method that will work best under a given set of conditions.

Of the three processes of dyeing—the one-bath, the two-bath, and the split-bath method—the one-bath method probably is employed most extensively today. The chief advantages of this process are that it speeds up production, helps to eliminate sleaziness, and improves the body of the stocking. Usually less finishing material is required on hosiery dyed by the one-bath method, as a certain amount of silk gum is left on the stocking. Disadvantages of the one-bath method are that it is difficult to make dyeing formulas check; more dyestuff is required than with the two-bath method; and dyeing is affected more by any change in the water, degumming agent, finishing material, etc.

The two-bath method is favored by some dyers, particularly for 8 to 11-thread, service-weight styles; for producing shades of exceptional depth; or when adverse water conditions prevail. Advantages of the two-bath method are about the reverse of the one-bath; that is, it is easier to control and it gives more definite results when dyeing to formulas. On the other hand, it takes longer, due to the extra time needed for degumming and rebagging the goods; and more finishing material is usually required.

The split-bath method is employed quite widely. It is often preferred, for example, when goods of a very oily nature are being processed, such as those which have rayon tops or which contain an excess of conditioning, coning, or knitting machine oils.

In his choice of a dyeing method, the dyer must take into consideration whether or not there is an abundant supply of pure, soft water. A softener can be employed to remove magnesium or calcium salts; but the removal of iron, alum, chlorine, or other foreign substances requires extra steps.

Attention should next be given to the type and amount of degumming agent to be employed. When using soap, the writer prefers a low-titre, neutral soap; when using a degumming oil, he prefers one with initial alkalinity of not over pH 11.2, falling to about pH 8 after the goods have been run for 30 min. In general, from 8 to 12% of boil-off oil or 10 to 15% of soap is needed. With fine-gage, sheer hosiery, less soap or oil is required than with service-weights.

Typical procedures for the three methods are as follows: Single-bath method—run goods for 40 to 45 min. in degumming bath containing dyestuff, add salt, run 15 to 20 min., and sample. Two-bath method—run goods for 40 to 45 min. in degumming solution, give two warm rinses (160° F.) and one cold rinse, run in dye liquor for 20 to 25 min., add salt, run 15 to 20 min., and sample. Split-bath method—run goods 15 min. in bath containing $\frac{1}{3}$ to $\frac{1}{2}$ total amount of degumming agent, flush machine, add remainder of degumming agent and dyestuff, run 30 min., add salt, run 15 to 20 min., and sample.

Whatever method of dyeing is followed, it is important that good penetration of the dyestuff be obtained. Addition to the dyebath of a good grade of sulphonated castor oil or other wetting agent is an aid. It appears also that a four-pocket machine is advantageous, as the goods get a good turnover and do not tend to slide around the axis as much as they do in the three-pocket machine. Maintenance of the proper liquor level is likewise a factor; too high a level causes the goods to float and prevents turnover, while a lower level promotes turnover and, consequently, penetration.

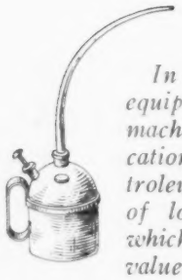
It has been mentioned previously that in some cases use of the one-bath method helps to correct sleaziness. The two-bath method, on the other hand, seems to increase the distortion of the stitches. Use of a finish which tightens the stitches is of advantage for treating sleazy goods which have been dyed by the one-bath method. If, however, the goods are dyed by the two-bath method, the distorted stitches apparently become set, and it is difficult to remedy the defect in the finishing bath.

Much has been said and written about grease spots, or so-called niggerheads. If a mill using the one-bath method is having trouble from grease spots, it is advisable to shift to the split-bath method. This is particularly true if the niggerheads are due to the presence of coning or conditioning oils that settle on the goods in the form of fine black spots or if they are caused by the breaking down by the finishing agent of the degumming oil left in the goods when they are not thoroughly rinsed after dyeing.

At times, of course, niggerheads are due to other conditions and difficulty is encountered in avoiding them. When, however, they are due to the above-mentioned causes, a change from the one-bath to the split-bath method will usually prevent their recurrence.

Controlled Lubrication

MADE POSSIBLE BY IMPROVEMENTS IN TEXTILE MACHINERY DESIGN



In the last few years builders of textile equipment have made many improvements in machine design which afford controlled lubrication of moving parts. Coincidentally, petroleum research has led to the development of low-torque greases and other products which by reason of their high lubricating value require the minimum quantity. In some instances the improvements in design have marked a wide departure from heretofore accepted practice. Therefore, in the following discussion of lubrication methods—which is absracted from the June 1934 issue of "Lubrication," published by the Texas Co.—particular attention will be given to those types of machines that have undergone the greatest change.

THE better control of lubrication made possible by recent improvements in the design of textile machinery has been of inestimable value to the mill owner, the machine operator, and the lubricating engineer. The mill owner saves money by reduction in cost of lubricants, oil-contaminated goods, injury to workers, and decrease in repair expense. The worker profits by better health conditions, less chance of lost time due to accidental slipping in pools of dripped lubricants, and less responsibility in regard to machine maintenance. The lubricating engineer is better able to offer more positively the most suitable lubricant for specific operating conditions, and hence to become a true consultant to his customers. With these facts in mind, we can turn immediately to the consideration of modern practice in the lubrication of various types of textile equipment.

Cotton Opening

On opening machinery, use of the anti-friction bearing automatically permits of positive and dependable lubrication where housing and seal have been designed to enable proper retention of lubricant. Straight mineral oil of varying viscosity, according to speed and bearing design, will function satisfactorily if it can be retained by the bearing seals. Otherwise, a light grease will normally be preferred. The necessity for reduction of bearing temperatures must be borne in mind; lubricant body or viscosity must, therefore, be kept as low as possible to reduce development of heat by internal friction within the lubricant itself. If gears are not properly covered to protect the lubricant and prevent throwing or dripping of lubricant, a comparatively heavy-bodied straight mineral lubricant should generally be used. By virtue of the adhesive nature of this type of product, but a very small amount will be required.

Card-Room Operation

In lubricating the comb box on cards employed in both the cotton and the wool industries, use of lubricants which are capable of readily following the comb-box elements with minimum resistance to flow will promote lower frictional temperatures and insure more positive maintenance of the desired clearance between the comb and doffer cylinder. A light to medium viscosity straight mineral oil, or a low-soap-content light grease capable of resisting separation will function best in such service.

In order to prevent oil leakage from cylinder bearings to the card clothing on the main cylinders, study has been given to the adaptability of ball bearings for these elements. When installed in seal-type housings, they effectively prevent leakage of lubricants to the card clothing. Furthermore, they materially reduce the power consumption, especially on starting, when lubricated with a suitable low-torque grease. It is, of course, practicable also to use oil where the housings of such bearings are absolutely oil-tight. Under such conditions a comparatively low viscosity, straight mineral oil of around 100 seconds Saybolt at 100° F. will be satisfactory. Where plain bearings are involved, however, a somewhat heavier oil will be necessary, ranging from 200 to 300 seconds Saybolt viscosity at 100° F., according to the bearing design, method of application, and extent to which leakage might become of serious consequence.

Worsted Comb

The dabbing motion of worsted combs presents a difficult lubrication problem. Lubricants of reduced viscosity may be thrown from the cam motions of some machines where construction is not entirely tight. For this reason, the lubricant should have sufficient body to withstand the pounding of the dabber and the thinning-down effect of higher temperatures.

Revolving table roll and draw-off roll bearings also require a fairly heavy bodied lubricant which will adequately resist heat. Experience has indicated that where oil should be used, a viscosity in the neighborhood of 500 seconds Saybolt at 100° F. will suffice. Where grease lubrication can be maintained, a product containing an oil of similar viscosity will serve very well. The trend towards the anti-friction bearing will, of course, permit a certain amount of reduction in viscosity.

Spindles

The difference which may exist between the room temperature and the temperature of spindles is a primary indication as to the lubricating and friction-reducing ability of a spindle oil. Every care should be taken to observe and record such temperatures, and reduce the viscosity of the oil as far as possible. Reduction in viscosity of a spindle oil should never be carried to an extreme, however, due to the possibility of metal-to-metal contact and the resultant increase in metallic friction which would cause excessive wear. The forerunner of this would be marked increase in spindle temperatures and excessive power consumption.

Spindles on silk throwing machinery normally require a comparatively light oil which has been highly refined

to render it as nearly stainless as possible. Other working bearings of the spinning or throwing frame can be effectively lubricated by means of a high grade of machine oil of about 300 seconds Saybolt viscosity at 100° F. However, if grease fittings and perhaps ball bearings are installed, a medium-consistency, low-torque grease should be used.

Frictional spindle drives do not require lubrication. Adjacent gearing and any silent chain drives which may be installed on some machines should be sparingly lubricated by means of a relatively heavy grade of liquid grease that will not drip. Where ball bearings are installed on the heavy elements of spindle belt drives, etc., the lubricant should be a light-bodied grease free from acid and alkali, and capable of functioning with minimum torque.

Tram rings must function with the least possible rise in frictional temperature. Lubrication daily with a light consistency, comparatively stainless grease is conducive to such operation. Lubrication is best accomplished by putting grease in the palm of the hand and applying it to the rings with a finger or flexible swab. The throwster should be careful to avoid excessive lubrication of such rings.

In the design of looms there has been a decided trend towards automatic lubrication, oil-circulating systems and pressure grease appliances being standard on many modern machines. For smaller bearings on looms, a high-grade machine oil of approximately 300 seconds Saybolt viscosity at 100° F. will be suitable. For the lubrication of larger bearings, such as on rolls, the use of a somewhat heavier lubricant may be advisable. Frequently, a good grade of light grease will give best results, and the trend is to provide lubricating devices to handle such a product. For gears and chains, a fairly adhesive grease will generally give best results, although it is perfectly practicable to use a relatively heavy oil if it is sparingly applied.

Both gears and driving chains of the so-called silent type, if located in relatively oil-tight casings, will probably function best if lubricated with a straight mineral oil of approximately 100 to 150 seconds Saybolt viscosity at 210° F. A light viscosity, stainless textile oil, or a high-grade liquid grease, will function best on jacquard machines. The latter is preferred by some authorities, due to its non-dripping tendency.

Knitting Machines

All flat-bed knitting machines require careful lubrication of the needle, guide, sinker, and presser mechanisms. In general, the lubricant, which should be very highly refined product, must be carefully and sparingly applied to prevent access to and possible damage of the fabric. The normal viscosity range for such an oil will be from 75 to 100 seconds Saybolt at 100° F.

Cams and other operating mechanisms, including bearing boxes, will, however, require a somewhat heavier oil, similar care being exercised in its application. For roll and motor bearings a straight mineral oil of from 180 to 200 seconds viscosity is recommended. For gears and chains a medium consistency grease will serve the purpose admirably, although some builders also suggest the use of a straight, mineral, steam-cylinder oil.

In circular or tubular knitting machines a point where careless selection and application of the lubricant may cause trouble is on the roll take-ups and worm-gear attachments. For this service a highly refined mineral oil should be used in order to eliminate excessive loads upon the needles as well as to prevent gumming.

Viscosity determination, as a check on oil grade, made with Saybolt viscosimeter

Finishing Equipment

The inclosed tenter frame, certain designs of calenders, and the drying machinery used for virtually all types of textiles will almost always present a temperature condition which must be studied by both the bearing designer and lubricating engineer. Obviously, a specially prepared, high-temperature grease, or highly refined steam cylinder oil of adequate body to resist the viscosity-reducing effect of temperature, will cost more than a cup grease or machine oil. The increase in cost, however, is excellent insurance against bearing failure, and when weighed against the probable cost of bearing replacements should be fully justified.

Most recent practice in the design of ageing machines is to locate all bearings externally, in order to eliminate, as far as possible, contact with acids. Use of the seal-type ball bearing, with provision for grease lubrication, has been found to prevent entry of acids into the interior of the bearing. Where oil is used, it should be remembered that if it leaks out there would be no seal remaining against the detrimental effects of any acids that might gain entry. Bearings for oil lubrication should, therefore, be studied carefully from an oil-retention point of view.

In the average textile finishing plant chains on mercerizing frames are often lubricated solely by the caustic employed in the processing of the goods. Recently, however, study has been made of the application of the mechanical force-feed lubricator equipped with two flexible feed lines which extend to the underside of the rail on each side of the frame. These feeds serve to lubricate the bottom of the chain as it runs over or is guided along the rail. The top of the chain is lubricated about once every shift by pouring oil in a fine stream while the frame is running. The type of oil which has been found most satisfactory for this purpose is a comparatively colorless, highly refined, light-viscosity product.

THIS DEPARTMENT-

offers a new subject for discussion every other month and gives readers' comments on problems introduced in previous issues. It alternates with the "Kinks and Wrinkles" department. The subject opened in May is closed and a summary of contributed ideas is given on opposite page. Overseers and others are invited to discuss the subject presented this month under the heading "Prize for Accident-Prevention Proposed" and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

Overseers'

PRIZE FOR ACCIDENT-

"ACCIDENTS cost money," said Superintendent Chase as the overseers moved their chairs to get the most advantage from the electric fans, "and I have made it a point to speak a good word to an overseer whenever his department has made a good record for some time. However, I've had an idea in the back of my head that some plan might be worked out whereby an overseer would get some sort of bonus or reward for particularly good work in this line. Do you think that something of the sort could be arranged?"

"Maybe it's the hot weather," Bill grumbled, "but I'm not enthused. I think it would be just another of those things. Naturally, I don't like anyone in my department to get hurt, and I do all I can to teach them to be careful and to check up on any hazards. If I make a special drive, with a view of getting a bonus of some sort, I don't think that the improvement would be noticeable and I'd just be wasting my time."

"My time may not be valuable," Bill continued with a chuckle, "but I can still kid the company into paying me, and if I spend hours fussing about accidents I spend less time on production problems. Frankly, I don't think accidents happen often enough in the textile industry to bother with any elaborate bonus plan; and anyway some departments are more dangerous than others and that would throw everything out of kilter."

"I don't think Bill would be so sour on the proposition if he really sat down and figured out how much accidents *do* cost," Pete retorted. "You may talk about being covered by insurance and all that, but you just watch what happens in your department

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Training New Help

Editor, Overseers' Round-Table:

The method of putting on and training new help is certainly, in my opinion, of very great importance and something that has been dreadfully neglected at the expense of all concerned.

All beginners should be handled very carefully. I do not believe in giving them a first-hand impression that they are going to be "bossed" around. This will demoralize them quicker than any one thing that can be done, and the sad part of it is that nine out of ten will not walk out on you until you have spent two or three months training them.

I believe that there should be a standard "learners" rate of pay for every job, as this seems to eleminate from their minds any idea that "the boss ain't treatin' 'em right." The overseer should, in the presence of the second hand, impress upon them, in a courteous manner, the fact that certain rules and regulations of conduct and production are to be obeyed. They should be made to understand, if possible, that they are working for a living and being paid for it, and that the greater their production the higher their wages will be.

Learners should then be placed with some good, loyal experienced hand for the entire six weeks allowed for learners. You cannot move them around over the room like "checkers" and expect them to learn as quickly as they will on one regular job. All fixers should be instructed to watch the new help and do all they can to train them correctly. The overseer and second hand should make a friendly stop occasionally to see how things are going.

H. H. ROBBINS.

Editor, Overseers' Round-Table:

Under most of the NRA textile codes, minimum pay for learners is limited to six calendar weeks. Therefore, training of learners should be as intensive as possible in order to make a proficient worker in a short space of time.

My company has a school set up within the plant, which is undoubtedly the ideal way to teach new employees. Approximately 75% of the training period is spent in the school; the remainder of the apprenticeship is spent in the department in which the learner is to work eventually. While in the production department, the learner is under the guidance of a skilled workman who has the ability to teach. While teaching, this workman is paid a bonus: the progress made by the pupil governing the size of this bonus.

Learners should be, and are, selected by an experienced employment officer, in order that an impartial selection of the best physical and most intelligent types can be made. Friendship, relationship, fraternal connections and other factors do not influence the selections.

WALLACE GILL, JR.

Editor, Overseers' Round-Table:

The mill is in the business of manufacturing a textile product. The vocational school is in the business of producing competent operatives. It has always seemed to me that these were distinct and separate fields of operation and that "overlapping" of the two functions would be highly unprofitable from almost any angle you wish to view the situation.

Whether the mill permits an apprentice system, conducts its own training course, or supports a vocational school, it pays for the training. If all of the mills in a given area could cooperate on one, good vocational school, that would seem to be the most logical and effective way to train new operatives.

Round-Table

PREVENTION PROPOSED

the next time some one even jams a finger. All the rest of the operatives gather around to sympathize or merely to satisfy their curiosity, the overseer and second hands must come up to see what must be done, one or two operatives must escort the injured to the hospital or doctor, and, when all is said and done, the department really isn't running for a period of time anywhere from 15 minutes up. Add up all the tangible costs of an accident and then add the intangibles and it mounts up. For that reason I think the company would be justified in setting up one or more prizes for the best accident record. There might, for example, be a yearly prize of $25. As far as one department being more dangerous than the other is concerned, all you would have to do is to rate them on past performance. The prize would go to the overseer showing the greatest improvement over the previous year or years."

"To conclude," said Pete with a grin and a bow to Bill, "it gives me great pleasure to tell my pal that he is talking bunk when he says that a definite drive against accidents doesn't produce results. And if he doesn't believe me, I'll snow him under with facts and figures from other plants."

▶ **Do *you* believe that a prize for the overseer having the best accident record in his department would be a good thing?**

Of course, it is understood that a program of close co-operation should be maintained between school and mill managements in order that instruction may be in keeping and in proportion with the needs and opportunities in the various mills. Likewise, a selective process should be put into effect so that "square pegs" would not be trained for "round holes."

H. D. G.

Editor, Overseers' Round-Table:

If I were to hire a new man, I would use the following system:

I would first give him a short interview, discussing his previous positions and his reason, if any, for wanting a job in this particular business. Then I would relate to him briefly the nature of our business, and also tell him of the conditions, rules and regulations he is to work under. After this I would take him into the department in which he is to work, show him the different types of machines and explain to him briefly for what purpose they are used. After this, everything proving satisfactory to both parties, including salary, working hours, etc., I would turn him over to an experienced helper and have him taught the operation of the particular machine he is to work on.

After a fair trial of about a week, a person should be able to tell if the man is ambitious to learn and really wants to make good and prove an asset to the company he is working for.

I also think an experienced employee should be very anxious to teach, because he would not be in the position to teach a new employee if he himself had not been taught.

HERMAN PLOSS.

Editor, Overseers' Round-Table:

I agree with Pete. Any new hand, experienced or not, always requires some instruction, so why not face that fact and do the required teaching properly and according to a well-defined program?

A new man entering our department is assigned to work, in turn, with certain selected, older employees whose duty it is to instruct him fully in our methods of work. While he is undergoing this intensive training, the progress of the new man is frequently checked by the overseer and second hand; hence, by the time he has successfully passed through this training period, we know that he is fully qualified to handle the work according to our procedure.

Inasmuch as this training has demonstrated repeatedly its worth, especially in weeding out the unfit or careless individual, we are all in favor of programmed instruction for new hands.

Z. E. SARGISSON.

Editor, Overseers' Round-Table:

I believe the best method of handling learners in a department is by a training crew, where the mill is large enough, and, in a smaller mill where a training crew is too expensive, I think that two or three of the best operators should be set aside to teach all learners. Of course, a training crew seems an expense, but, in the long run, if men are trained by a training crew especially fitted for the task, it will prove less expensive, because there are very few things more expensive than an employee ignorant of his proper tasks and routine.

The old method of letting any operator who is willing to teach the learners take them and teach them is obsolete. The most efficient employees usually are not willing to teach learners while an inefficient operator may be willing. Over a period of time it is much more expensive than having them taught efficiently by a training crew.

OSCAR MILLIKAN.

SUMMARY

METHODS OF TEACHING LEARNERS. *Only about 10% of the contributors favored the old apprentice system of handling beginners, whereby a new hand is taught by any of the older operatives willing to do the job. Of the remaining 90%, practically all made a distinction between the large and the small mill. A definite training school was advocated for mills large enough to justify this method of procedure, while the plan most favored for the smaller mills was for the overseer to pick out several of the best operatives in the department and arrange for them to do the training of any new operatives. Quite a number of the letters stressed the value of vocational schools, particularly where a group of mills in a certain locality could get together and help support such a school.*

QUESTIONS AND ANSWERS

Silk-Wool Blends

Technical Editor:
We are inclosing a sample of yarn containing a percentage of "pure silk." We would appreciate any information you could give to us as to how this yarn is made. At what stage in its manufacture is the silk blended with the wool, and what types of machines are used when spinning this yarn? (8116)

The yarn submitted could be duplicated closely either on the French system or on the Bradford system of worsted drawing. The machines designed for the production of cotton and wool mixes or blends, generally called merino yarns, are ideal for this purpose. Such a set of machines would consist of the following: mixer or blender, intersecting gill box, drawing box, first reducer, second reducer, slubber, intermediate, rover, and finisher. All boxes are porcupine frames following the gills. The mixer really consists of three intersecting gill-box heads and two cotton draw boxes.

The spun-silk top would be combined with the wool on the intersecting heads of the mixer. If desired, the second intersecting head could contain 100% silk, which would then form a layer between two layers of wool. The end produced is of such a weight that only one or two ends can be used as doublings on the next machine.

It is also possible to make these blends successfully on the regular French sets of drawing equipped with intersecting gill boxes. The blend would be made in the usual manner, with care taken to obtain a good mixture of the doublings on the first box.

The same statement applies to the Bradford system using a fine set of drawing equipped with suitable gill boxes. We know of one drawing overseer who has successfully blended silk and wool using gill boxes having 2-in. front rolls and screws of ⅜-in. pitch. If the end from the two-spindle gill box is even, success is assured with skillful handling in the after processes. Ratch for the longest material in the blend, control the shorter material through the carriers and twist, and arrange drafts to suit the shorter material.

The ideal spinning machine for this type of yarn is the ring frame on account of the smoothness of the yarn, a characteristic which enhances the luster of the silk in the blend.

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Rayon Fabric Cockled

Technical Editor:
We are sending you about 2 yd. of a rayon cloth. Rectangular patches of "cockling" are evident in more or less degree when the fabric is draped and viewed across the middle of the piece downward, and especially on one side. In parts the patches are arranged more or less parallel to the warp, in other parts diagonally to the warp, showing a diamond-shaped figure. The information we beg you to give us is to indicate the cause of this defect, whether faulty yarn (warp or filling), weaving, or finishing. (8114)

As the filling is the same with respect to size, twist, etc., in both the defective and satisfactory areas, it is evident that the defect is not due to imperfect filling. One cause is apparently the fact that the weave

is looser in the defective area than in the remainder of the goods, due to irregularity in the tension either in the warping or in the weaving. Furthermore, the fabric has been improperly processed, mainly in the breaking machine, as break marks are evident at various places in the sample. Probably the breaking machine has been incorrectly operated.

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Future of Testing

Technical Editor:

With reference to the article entitled "Future of Testing" appearing in the May issue of TEXTILE WORLD, page 100, I am particularly interested in what is said in the second paragraph, as follows: "Such standards nullify attempts to advance further the accuracy and reliability of testing."

Under the setup and work of Committee D-13, as well as other standing committees of the A.S.T.M., means are provided for keeping up to the times as new machinery improvements present themselves. It is true that the present textile specifications call for a machine of the inclination-balance or pendulum-type machine, but this is so simply because there was nothing better available at the time. I think various sub-committees of D-13 during the past few months have shown that this type of machine is not entirely accurate.

There is a testing-machine committee in D-13 whose membership includes several of the testing-machine manufacturers. This committee is always open to suggestions and recommendations as to new equipment and will be only too glad to recommend to Committee D-13 any change in specifications covering test apparatus that seems warranted. All the A.S.T.M. specifications are subject to revision at any and all times. Any proposed revisions remain as tentative for a year and then, if satisfactory, can be passed to standard.

In other words, if the present textile specifications as to testing machines are not accurate, the procedure is simple enough to bring them up to date by revisions if and when such recommendations are brought before the committee and considered ready for action.

K. B. COOK
Committee D-13
American Society for Testing Materials

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Waxing Knitting Yarn

Technical Editor:
A certain amount of our yarn is paraffined in the winding operation. In the winter, we use a paraffin wax having a melting point of 123 to 125° F.; and in the summer, of 133 to 136° F°. Even with this higher melting point, we have trouble with the wax becoming so soft that it loses its shape, grips the edges of the holder, and remains in one position until the yarn cuts a groove to the bottom of the cake and then picks up no more paraffin. We have a sample of wax which is more translucent than ordinary paraffin wax and is supposed to remain much more solid in hot weather. It appears to be a blend of some kind. Although we have this sample we have no way of finding the source of supply. We shall appreciate any information you may have regarding manufacturers of waxes for such purposes. (8092)

We have no definite information as to the manufacturer of the particular type of wax you have in mind, but can make the following suggestions: There are on the market a number of waxes with higher melting points than paraffin. By melting one of these waxes together with paraffin you might find it possible to prepare a blend which would be suitable for your purpose. It might be necessary to do a little experimenting before you obtain the product which gives best results. Three of the waxes suggested for blending with paraffin are carnauba wax, ceresin wax, and ozokerite wax. Paraffin wax itself is available in several types, with melting points varying from 107 to 140° F. Carnauba wax has a melting point of about 185° F.; ceresin wax has a melting point of 165 to 176° F.; ozokerite has a melting point varying from 131 to 230° F., usually about 158° F. It is very possible that if you were to determine the melting point of the sample of wax which you find satisfactory and then prepare blends with paraffin and each of the other waxes mentioned above, in such a way as to approximate that temperature for melting, you will be able to find a wax which will serve your purpose. We are inclosing a list of dealers in the various waxes mentioned above. There is a chance that one or more of these firms can supply you with a suitably blended product, as well as the straight waxes.

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Maintaining Standard for White

Technical Editor:
We have run against the difficulty of holding our bleachery on a standard shade of white, due partially to our standard getting soiled from handling, as well as from yellowing with age. We should like some information as to the methods used in other plants to make certain that a standard shade of white is obtained. (8129)

The following method of maintaining a white standard gives very good results: Take a skein of bleached yarn and wash repeatedly to make certain that it is free from all traces of bleach or acid. Then have the dyer or bleacher tint it to the shade desired. This skein should be wrapped in wax paper and kept in a closed drawer or cupboard. Small swatches can be cut off as required. Since bleachers blue will fade a little over a period of time, it is wise to replace the skein every four months or so and tint the new one to the full side to take care of the loss of color. One well-known manufacturer has a skein tinted to the necessary shade with vat color and keeps it over a year in a suitable container.

We know a Scotchman who used to beg a sheet of glazed paper of the tint desired from a paper manufacturer and used that as a standard.

QUESTIONS AND ANSWERS

Slubs in Rayon-Wool Blend

Technical Editor:

Our problem is this: We made a filling yarn using 30% delustered rayon and 70% B. A. low ¼ top. We spun to 1/21s. The small slubs in this yarn were terrific; and even after slub catching, it cost 2c. a yard in the gray.

We have made quite a few rayon blends with fair success. We find rayon blends are more slubby than straight worsteds, but we have never experienced such a bad lot as this, so we are asking you to help us determine the trouble. We are mailing, in separate package, slivers of rayon and B.A. top, skein of roving, and a bobbin of the yarn made from it.

The drawing process was one open-box gilling and one intersecting gilling, and our layout for the drawing was as follows:

Operation	Ends	Drafts	Ratch	Approx. Weights
Can Gill.....	5	7	....	11,700
2 Spl. Gill.....	6	7	....	10,000
1st Draw Box.	5	8	12½"	6,100
2nd Draw Box	4	8.5	12"	3,050
Slubber.....	2	8.7	11¼"	716
Speeder.....	2	9	11"	165
Spinning.....	1	7	11"	....

Gill box, intersection type—1¼-in. front roll, no top fallers, 11 faller pins per inch, single row.

Also inclosed are slubs taken out of approximately 30 lb. of yarn by the slub catcher. The rayon top sliver was 4 oz. for 5 yd. and the B.A. top sliver was 6¼ oz. for 5 yd.

Thank you for any information you can give us to help us avoid this trouble in the future. (8107)

It is our opinion that your trouble originates in the delustered-rayon top. This is neppy and stringy, and groups of short fibers are to be found at intervals all along the sliver submitted. We also believe that trouble is experienced in handling the rayon behind the gill box, with the result that loops are formed which later appear as slubs.

Practically all the slubs are composed of clean fibers, and rayon fibers compose the bulk of the slub. This is in itself evidence that all precautions have been taken as regards the cleaning of both rubbers and rolls.

Your trouble is also increased by the use of both ring rovers and ring spinning. With such a blend we do not see how you can avoid the production of still more slubs due to flyings on the ring rail and waste collecting on the travelers. This criticism applies with equal force to the spinning.

If you have more of this top which you must use in other blends, we offer the following suggestions:

1. Regill the rayon top, using the intersecting gill box with both sets of fallers and a draft which is as high as possible consistent with evenness. Use a low speed.

2. Arrange weight of the rayon so that the two ends can be arranged in sandwich formation between four ends of wool top. This may be impossible due to the thickness of the layer. If the gill box is a three- or four-head mixer, we would run the rayon on one head so that the final end would contain a layer of wool both above and below the rayon, as in the case of cotton-and-wool blends.

3. Check piecings throughout the drawing and see that all lumps are removed in front after each piecing on draw boxes. Break all ends in front after each piecing on both the slubber and speeder.

4. Use cone drawing if you have frames available in place of the ring rovers for these blends.

5. If possible, clean the rubbers more frequently to prevent any possibility of slubs being formed from bunches of rubber waste. (We believe that this precaution will help to reduce the slubs, because many of them appear to be composed of waste fibers.)

We are returning a sample of the defects found in the 4 yd. of sliver submitted from the rayon top and suggest that you check our opinion by a thorough examination f the rayon top. Our final advice is that, if you can avoid it, use no more of this particular lot of rayon top. It is regrettable that such an excellent yarn as regards evenness should be so full of slubs.

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Finishing Gummed Label Fabric

Technical Editor:

I am inclosing a sample of cotton fabric used for making gummed labels. Will you kindly advise me as to the best way of finishing this material. I am not interested in learning how to apply the gum, but merely what filling is necessary. (8110)

This fabric is very heavily filled and backfilled. A gum, which appears to be gum arabic, has been applied to the backfilled side. A suitable formula for the filling (on the basis of 100 gal. of cooked size) is as follows: 80 lb. dextrin, 20 lb. tapioca flour, 25 lb. cornstarch, 30 lb. China clay, 1 gal. sulphonated olive oil, 10 lb. emulsified paraffin wax, 2 lb. Japan wax, and 4 oz. turpentine.

Cook the dextrin, flour, and starch for 30 min.; stir in the China clay paste; turn off the steam; add cold water to reduce the temperature to 190° F.; then stir in the oils, waxes, and turpentine. Keep agitated and apply. Shell up the goods as they come from the starch mangle and allow to remain on the shell for 3 to 4 hr. before putting on the dryer. After a trial piece has been run, it may be found necessary to modify the formula somewhat to give the exact results required. When the goods come off the dryer, it will be necessary to dew and calender them, using a calender with one steel and one husk roll, chased to a medium degree.

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Preparation of Tailor's Wax

Technical Editor:

Will you advise me as to the proper method of making tailor's wax chalk—white, black, and red. It must be an inexpensive process, yet the product must have a high enough temperature not to get soft in the users' hands and to stand the heat of the mills. Kindly let me know the proper melting point of tailor's wax chalk. The wax which I am making now consists of 85% paraffin (133 to 136° F.) and 15% carnauba wax (Grade No. 2). Any other methods of making this chalk would be just as suitable, but please bear in mind that the light color of the white chalk is very essential. It must have a slight yellow background. Also advise me of the proper dyes to use for black and red chalks. Can tailor's wax chalk be made from paraffin wax alone? (8094)

Tailor's wax cannot very well be made from paraffin wax alone, but if you wish to persist in the endeavor, you can take paraffin wax, color it with stearic acid and oil-soluble dyestuff, and harden with the addition of some aluminum stearate. A good wax consists of 80% of 135° F. paraffin wax, 12% of No. 2 carnauba, 5% of ceresin, and the remainder stearic acid with the coloring matter, or enough terra alba to whiten for white wax.

The best way to handle the oil colors is to add the required amount to hot melted stearic acid, stirring in thoroughly until evenly mixed; pour into a mold or shape; and then use the necessary amount to produce the color of wax required. About 1 gram of color to 20 grams of stearic acid is the proper proportion.

Wax having a melting point of about 150° F. ought to be high enough for ordinary conditions; but if you find it too low, you can obtain a harder paraffin wax from any of the larger producers.

▼

Bleaching Felt and Hemp

Technical Editor:

We are inclosing a piece of felt which one of our customers has asked us to bleach. The stock is being bleached with sulphur fumes, but something else is now preferred. Our customer is desirous of knowing what bleach will not injure the material and just how to go about bleaching the felt. We are also inclosing a piece of hemp which our customer is interested in bleaching with some material other than concentrated hydrogen peroxide which he finds to be too slow. We shall appreciate your suggestions. (8122)

Attempts to bleach the felt with potassium permanganate and sodium bisulphite, as well as with hydrogen peroxide failed to give satisfactory results as the solution would not penetrate the felt for a distance of more than ⅛ in. It is our conclusion, therefore, that the best method for bleaching felt is with the sulphur fumes as is now being done. It is possible, however, that the felt could be bleached with a solution of sodium bisulphite. In the latter case, if the felt is being fulled by the acid fulling method, we suggest that the felt be taken directly from the fulling mill without washing and immersed in a solution of sodium bisulphite until the desired bleaching effect has been obtained.

We believe that the hydrogen peroxide method is the most satisfactory one for use on hemp. Chlorine bleaches give the fabric a distinct yellow color; potassium permanganate and sodium bisulphite do not give a uniform bleach; sodium perborate gives good results, but takes fully as long and is a little more expensive than the hydrogen peroxide method.

It is very possible that your client is not using the most efficient method of applying hydrogen peroxide; and it might be to his advantage to take up the matter with the manufacturers of this compound. Hydrogen peroxide should, of course, be applied in a bath made alkaline with sodium silicate, or another alkali, if a quick bleach is desired.

Condensing, Cooling

CALCULATIONS INVOLVED IN OPERATION OF STEAM EQUIPMENT

By Charles L. Hubbard

◆ *In a previous article* (TEXTILE WORLD, *January, 1934*) *Mr. Hubbard pointed out the savings in steam made possible by the use of a condenser. He now takes up some of the factors to be considered in the operation of condensing and cooling equipment.*

EACH of the several types of equipment employed for cooling condensing water operates on the same principles, depending on the three processes of evaporation, radiation, and conduction. The percentage of the total cooling effected by any one of these processes varies, however, according to the method employed. In the case of cooling towers and sprays, for example, most of the work is done by evaporation, that due to radiation and conduction running from a very small amount up to about 10% of the total. In cooling ponds without sprays, conditions are reversed.

In the process of evaporation about 1,000 B.t.u. per pound of water evaporated is withdrawn in the form of latent heat. The absolute limit to which water may be cooled in this way is the dew point of the air passing through the tower, but in actual practice the final temperature usually averages from 10 to 15° F. above this. For example, with the standard conditions on which cooling towers are usually rated, 75° dry-bulb temperature and 70% relative humidity (wet bulb 68°), the dew point is 64°, which would give a minimum water temperature of 75 to 80°. The dew point is a variable quantity, depending on the relation between the wet- and dry-bulb temperatures, and can be obtained from a psychrometic table for any given set of readings.

The temperature of the discharge water from the condenser, which becomes the initial temperature of the water delivered to the cooling tower, depends on the vacuum carried on the prime mover, the efficiency of the condenser, etc. For the conditions and type of equipment employed in connection with steam engines, the figures given in Table I may be used for making approximate estimates. With the higher vacuum and more efficient condensing equipment usualiy employed for steam turbines of medium and large size, the figures given in Table II may be taken.

In order to determine the volume of air to be passed through a cooling tower to obtain a given result, it is necessary either to know or to assume the initial and final water temperatures and the weight to be cooled per hour, together with the initial and final temperatures of the air and its relative humidity before enterng the tower. Data have already been given for estimating the weight of water to be cooled and also its initial and final temperatures, (TEXTILE WORLD, January, 1934). Under certain favorable conditions it is possible to operate with an outgoing air temperature only 3° below that of the incoming water (discharge from condenser), but usually the range is from 10 to 20° below, with an average of 15° for steam-engine outfits, and 5 to 10°, with an average of about 8°, for turbine plants.

The total heat to be abstracted from the water is given by the following formula:

$H = W(T_2 - T_1)$, in which H = heat abstracted from the water in B.t.u. per hour; W = pounds of water passing through the tower per hour; T_1 = initial temperature of water entering the tower (temperature of discharge from condenser); and T_2 = final temperature of water leaving tower (temperature of supply to condenser).

If 10% of the heat is removed by direct transmission, 90% or 0.9 H is left to be given up in the process of evaporation. The latent heat of evaporation of water at atmospheric pressure is 970 B.t.u.; hence the weight of water to be evaporated to produce a given cooling effect, is $W = 0.9\ H \div 970$, in which W = pounds of water to be evaporated per hour; and H = total heat, in B.t.u. to be removed from the condensing water per hour.

The next step is to determine how much moisture will be carried away per cubic foot of air leaving the tower. Under standard conditions, with the air entering at 75° F. and 70% relative humidity, each cubic foot will contain 0.00093 lb. of moisture. With a well-designed tower, the air will leave fully saturated; that is, at 100% humidity. Deducting 0.00093 from the weight of moisture contained in saturated air, we obtain the data given in Table III covering the working range for different discharge air temperatures under the assumed conditions.

To determine the cubic feet of air to be passed through the cooling tower, compute the pounds of water to be evaporated in a unit of time, and divide this by the factor in Table III corresponding to the estimated temperature of the air leaving the tower.

TABLE I. Temperature of discharge water from condensers usually employed with steam engines.

Vacuum in inches	Temperature of discharge water from condenser
24	125° F.
25	119° F.
26	110° F.

TABLE II. Temperature of discharge water from condensers usually employed with steam turbines.

Vacuum in inches	Temperature of discharge water from condenser
27	107° F.
28	95° F.
28.5	85° F.

TABLE III. Evaporation of water in cooling towers.

Temperature of air leaving the cooling tower	Weight of evaporated water carried away per cubic foot of air
77° F.	0.00051 lb.
87° F.	0.00102 lb.
95° F.	0.00154 lb.
99° F.	0.00184 lb.
105° F.	0.00235 lb.
110° F.	0.00284 lb.

Planning the Tapestry

THE DESIGNER'S PROBLEM LIES LARGELY IN SELECTING THE COLORS

By C. F. Harleston

THE standard of art in tapestry design calls for specialized training. The most successful designer for this class of work possesses considerable technical knowledge; but, owing to the prolonged study involved, a complete training artistically and technically is rarely attained by the individual. A working knowledge of the limitations in so far as they affect the number of colors, the sizes of repeat, the nature of effects, and the color values is more readily acquired; and the knowledge of just why these limitations exist is usually not sought after.

Such working knowledge amounts to a sketchy idea of weave-room practice including, in general, information as to the sizes of repeat widths for which certain looms are planned. These measurements frequently vary between 6¾ and 13½ in. Further, there are centered ties of 13½ to 27 in. to accommodate larger and symmetrically arranged designs. Being point-over ties, they are more correctly referred to as 27- and 54-in. repeats, respectively. The length of the design repeat is not determined by any looming factor beyond reasonable limits in the matter of expense in card-cutting, but repeats of 9 in. and multiples of 9 in. are convenient lengths.

The type of pattern is largely influenced by period styles, and it must be assumed that the sketcher is fully conversant with this aspect of the subject. The knowledge is not only a help to character in pattern, but it enables the artist to distinguish between that which is new and what may be but repetition of old motives. It has also a bearing upon color. Then there is the feel of the fabric style, whether fine detail is practical, to what extent shading may be attempted, and whether textural effects enter into the style.

For the purpose of illustration, a four-warp tapestry is used. The four-warp may be taken as typical of the class, although there are many variations. In the fabric selected for illustration there are four colored warps, which may be gold, green, red, and blue, and two filling picks, cream or fawn and black. At the same time there is a binding filling to make the fabric of firm handle and suitable for the purpose of a covering cloth. The colors and their derivatives are summed up as follows: gold, green, red, and blue where the four are raised individually over the light-colored filling; and dark gold, dark green, dark red, and dark blue where the four colors are raised over the black filling.

In these effects it will be noted that the filling has a part in the resultant hue, for the reason that the warp ends do not cover more than half the surface filling when raised individually. For this reason, two warp ends may be raised together to create a mixture of colors when the filling is obliterated; i.e., gold and red together go to produce an orange hue, green and blue to make turquoise, red and blue to form purple; and, further, gold and green, green and red, and gold and blue may be associated. When no binding warp is employed, as in the present instance, it is necessary to raise one of the colored warps over the binding pick, in which case the color mixture is composed of three components. Turquoise, while composed of green and blue, will also have, say, the red appearing on the binder filling. The filling is available for the purpose of outlining or of spotting.

The following table of colors and their derivatives is practical, without being exhaustive:

Over Cream Filling	Over Black Filling
Gold	Dark Gold
Green	Dark Green
Red	Dark Red
Blue	Dark Blue

Gold-green-red, green-blue-gold, red-blue-green, blue-gold-red.

The first-mentioned four colors plus cream are the principal hues of the scheme, the second plus black are tones of the hues, and the third are in the nature of tertiary effects. The combinations are such as to favor an outlined style of treatment, though the effect of green or blue over black is satisfactory as a ground upon which the other colors show up clearly (see Fig. 3). Where outlining is adopted, the line should be two dents in thickness. With this information the sketcher may proceed to his pattern.

In drafting the above, the usual methods of squaring-up may be resorted to, though the enlargement is not great and depends upon the pitch of the design paper used. The draft must have its repeat planned upon the required number of ends and picks, but the number represents the face-fabric count; i.e., 13½ in., which is equal to 432 longitudinal lines, the length being in the proportion of the threads to the picks. The setting is frequently about 32 ends per inch and 24 picks per inch. An 8x6 paper is suitable.

In drafting, the various tones and tints are copied in rather brighter

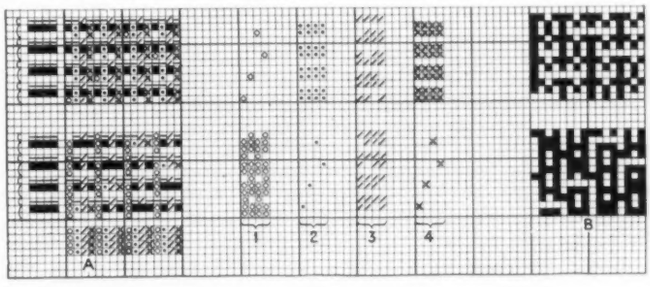


Fig. 1. A, weaves and extensions in ties. B, gamut weaves.

Fig. 2.

colors, and the paper is considered to be one of these. Each separate weave effect requires a distinct color to itself, so that there may be as many as thirteen or more, probably less, colors used.

Where there is a considerable amount of this class of work going on, it is more economical to grind colors on the slab, but the modern tendency is to utilize one or other of the brands of water poster colors. When working on the slab, a great deal more is learned of the nature of the pigments, and valuable lessons in mixing are taught—that is, in the degree of purity.

Owing to the use of the cheaper metal implements and metal ferrules of brushes, it has to be learned that these are responsible for some of the muddy color. Carmine is one color which is easily thus ruined. It is sometimes difficult to manage a color on large surfaces on account of sluggishness, but this has been satisfactorily handled by the introduction of a small quantity of glycerin. Experienced sketchers sometimes prefer a brand of poster color to which they can add this extra medium, in preference to an over-transparent color which, if bright, is frequently streaky in application.

Though, as has been stated, the sketcher and drafter may be able to perform their duties without knowing how to interpret the sketch in terms of weaving, it would be an advantage for the drafter at least to be able to instruct the card-cutting room in the matter of weaves. Someone has to be responsible for this; but if the knowledge were more general, it would be conducive to better workmanship.

With this end in view, some explanation of the looming is here given. It will be understood that the draft represents in color an approximation of the effect desired. The result in the fabric is very different, though it is an interpretation of the sketch in so far as it can be interpreted with the means employed.

The colored yarns are six in number. One longitudinal line of the design-paper draft represents one dent of the reed, which contains four warp threads. One horizontal line of the design-paper draft represents two filling threads. At the same time there is a third binder filling thread also represented by the same horizontal line of the draft, but its position in the fabric is following the first pair and in a line between each pair. A tertiary effect then is composed of two warp threads raised over the filling threads and one warp raised over the following binder thread. The principal colors—gold, green, red, and blue—are the respective colored threads raised over the cream filling in the uppermost position. The black filling is engaged with the remaining warps on the back of the fabric. At the same time, to get a fuller hue of color, the warp engaged, having a sparse covering power, is raised one-and-one over the binding filling. The weave is shown at *A* in Fig. 1. The colors given as dark gold, etc., are similarly treated, but with the black filling in the uppermost position.

It remains to explain the tertiaries as further possible warp effects. In these cases, suitable pairs of threads, such as green and blue, are raised together over the filling. It should be noted here that the color of the filling has now no influence in the resultant hue produced, as the pairs of warp threads cover the filling entirely. With the mixture of green and blue the red warp is all up on the following binding pick, shown at *A*.

Effective use may also be made of either of the two filling picks floated up as an outline—perhaps the most effective way of treating the style of fabric. In this case the filling is floated and is only sparsely bound by one of the warps to the face of the fabric. The color to be raised over the binder, not visible in this effect, is kept in the center of the material, and the remaining warps are interwoven on the back. This exhausts the practical effects or mixtures of tints. The weaves employed are four-end broken sateen, light and heavy lifts.

Two alternative methods of applying the weaves in card-cutting may be explained. In the first the warps are controlled upon separated ties in the jacquard machine. This has the advantage of simplifying the card-cutting and is usually accomplished on the piano machine. The card is divided in its length into divisions of rows, to use up the capacity of the machine and to divide the available hooks between the required number of colors. In the case of four-warp tapestry, twelve rows, equal to 144 hooks are available for each color in a 600s jacquard. In effect, should it be required to lift all the ends of one color, then the appropriate portion of the card is punched solid. If one-and-one or in the manner of a weave, it is quite straight forward as it affects the said tie.

As there are three further sections dealing with the remaining colors, the complete instructions for card-cutting may appear complicated.

One of the fabric effects may with advantage be traced through the instructions. This will afford a guide to the method of dealing with all the weaves that occur in the pattern. Assuming that the effect is gold warp over the cream filling and further is weaving one-and-one over the binding pick, then:

		Gold 1st tie	Green 2nd tie	Red 3rd tie	Blue 4th tie
1st card	Solid	Gold			
	3 & 1				
	1 & 3				
2nd card	Solid	Gold			
	3 & 1			Gold	
	1 & 3		Gold		Gold
3rd card	Solid			Gold	
	1 & 1	Gold			

The above makes it clear just what happens on the four ties in relation to the first and second filling picks and the following binding pick.

The natural question that arises is as to what is the procedure with regard to other colors which occur on the same horizontal line of the draft. This may be explained further by adding another effect to the foregoing—say, that effect which calls for green and blue upon the black filling and red upon the binding filling, termed turquoise:

		Gold 1st tie	Green 2nd tie	Red 3rd tie	Blue 4th tie
1st card	Solid	Gold	Turq.		Turq.
	3 & 1			Turq.	
	1 & 3	Turq.			
2nd card	Solid	Gold	Turq.		Turq.
	3 & 1			Gold	
	1 & 3		Gold		Gold
3rd card	Solid			Gold &	
	1 & 1	Gold		Turq.	

One effect after another may be added until all are included. The card-cutting machinery employed in connection with the Vincenzie jacquard is elaborate compared to the piano machine, which answers for the first method. In principle, the second method employs a harness mounting and a jacquard for the selection of the gamut weaves, *B* in Fig. 1, as well as a reading stance, where the strings are leased according to pattern in the simple form suggested by the draft. It may be readily seen that the system of tie-up determines the result. If one master cord pulls five punch-control strings into position, the jacquard, translating this into the gamut weave, will punch the card in conformity with the effect. For each weave, the card must be run through once. In this way the jacquard hooks are in the same order as the harnesses in the comber board, and changes in looming are more readily effected.

It may be of interest to note here that a card-cutting machine has been invented which by a multiplicity of cylinders may be made to apply at one operation as many weaves as there are cylinders.

Typical tapestry fabrics are shown herewith in Figs. 2 and 3.

Fig. 3.

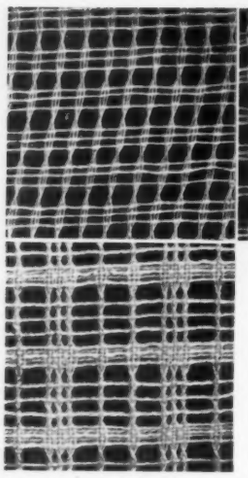


Fig. 1, above; Fig. 5, below

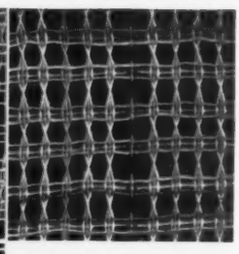


Fig. 3

The Curtain Opens

NET CLOTHS PROMINENT IN NEW TREND

By Jack Jarmak

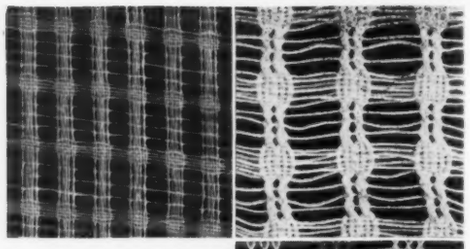


Fig. 7

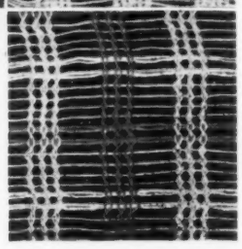


Fig. 9, above, Fig. 11, below

ENCROACHING seriously upon the position long held in the curtain field by "lace-net" cloths, and to a slighter extent upon that held by plain and fancy-figured, clipped-spot marquisettes, are the new net- or mesh-weave leno cloths. There is an obvious trend to this more open type of material, and present indications point to an extremely large trade.

The net cloths, permitting as they do a large diversity of weave, can be enhanced by a galaxy of color and still remain in popular price levels. When the color patterns are tastefully and artistically selected, the fabrics have an appeal which compares favorably with that of other curtain materials now in vogue.

In Fig. 1 we see an early favorite in this class. This has gained prominence in single colors. The construction is 38½ in., 21 by 12, 12/1 yarns for warp and filling, with weave and reeding plan as outlined in Fig. 2.

Fig. 3 is an example of the way in which plain fabrics, such as Fig. 1, may be colored. This in in effect the same construction as the preceding, but with color arranged in random fashion in warp and filling and with the weave and reeding plan as shown in Fig. 4.

Fig. 5 is made 38½ in., 21x15, 25/2 warp and filling, with weave and reeding plan as shown in Fig. 6.

Fig. 7 is illustrative of the lighter nets. This is made 38½ in., 36x20, 40/1 warp and filling, with weave and reeding plan as outlined in Fig. 8.

Fig. 9 is 39 in., 24x20, 30/2 warp and filling, two ends weaving as one throughout. See Fig. 10.

Fig. 11 is 39 in., 21x16. The warp is composed of 12/1 white and color; and the filling, of 12/1 white and color and 40/1 white.

Warp arrangement: 9 ends white; 9 ends orange; 9 ends white; 9 ends green.

Filling arrangement: 4 picks white 12/1; 4 picks white 40/1; 4 picks green 12/1; 4 picks white 40/1; 4 picks white 12/1; 4 picks white 40/1; 4 picks orange 12/1; 4 picks white 40/1.

The weave and reeding plan are outlined in Fig. 12.

Fig. 13 is a net made with plain weave throughout. Empty dents in the reed and an empty shuttle in the filling cause the open effect noted in this cloth. The construction is 38½ in., 36x24, 18/1 warp and 20/1 filling. This cloth is reeded 12 ends in 6 dents, 4 dents empty, and repeat. In the filling 8 picks of yarn are woven in, and the next 8 picks are thrown with an empty shuttle.

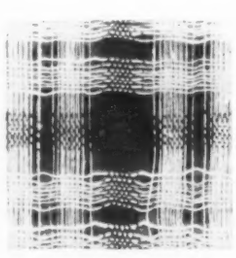
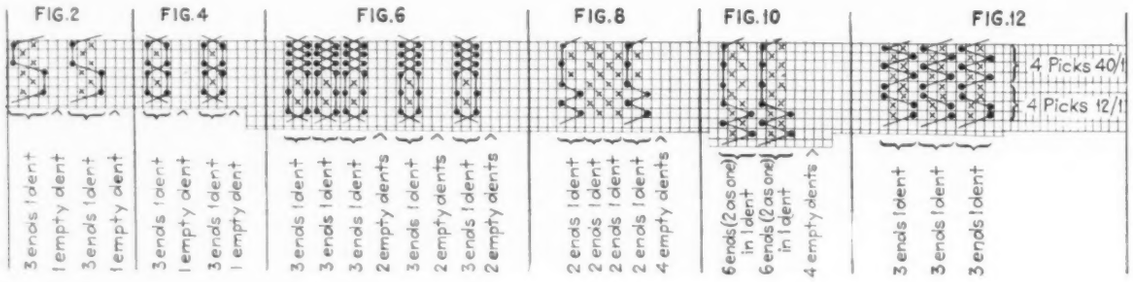


Fig. 13

Warp arrangement: 12 ends black; 12 ends orange; 12 ends yellow; 12 ends orange.

Filling arrangement: 8 picks black; 8 picks orange; 8 picks yellow; 8 picks orange.

No weave and reeding plan shown.



Textile World Analyst

BETTER FEELING ABROAD EVEN IF STATISTICS DON'T SHOW IT

AS we write this, things look better in the textile industry. We cannot be sure this improvement will last until this issue comes off the press. Nevertheless, a very definite trend set in about the middle of last month, pulling away from the recession which had dominated textile markets during previous weeks. It seemed to lend support to the theory maintained by many: namely, that textiles, having started their slump earlier than general business, would snap back more quickly.

The existence of this better feeling cannot be demonstrated by means of statistical data as yet available. For those interested in comparisons with last year, we have now reached the time when such comparisons are truly odious. The May-June-July-August textile activity last year was spectacular; this year, most branches of the industry have been observing curtailment programs.

Consumption of textile raw materials for the first five months of this year was about 2% over the corresponding period of last year, but May itself was 20% under May, 1933. Figures for June, when available, will show a much greater disparity. However, compared with what might be called a "normal" period, this has been a fair year. Textile activity in May this year was only 3% below that for the average May during the eight-year period 1924-31; during the first five months of this year, it was 7½% under that period for the same eight-year average.

A gain of seven points in raw cotton, while yarn and cloth remained stationary, featured TEXTILE WORLD'S price index numbers for June, reflecting a further shrinkage in manufacturing margins. Not since 1928 have the various cotton indices been so close together. In the wool group, the most pronounced change was in the top index, which declined six points. Conditions in the top market have not been favorable and it is to be expected that the drop would be greater than that registered by raw wool, where prices have been more or less pegged during the dull trading. The cloth index, being based on staples, is slow in readjusting itself downward, although there have been reductions on seasonable goods.

With raw silk establishing an all-time market low the latter part of June, the index number dropped to the low figure of 26 established in February and March, 1933. As a matter of fact, the current index number is fractionally lower than it was at that time.

The chief difficulty in predicting the course of the textile markets during the near future lies in the relationship between those markets and business in general. Sound opinion seems to lean toward the belief that the recession, generally, in July and August is to be quite marked—much more so than in June. Whether textiles can move independently of this influence, or whether they will be retarded by it, is an extremely difficult question. Our own hunch is that, while further improvement may develop shortly, just as it did to a slight extent in June, it will be relatively slight, and that a real upswing cannot be anticipated until later in the summer—say, after mid-August.

The outlook for pronounced resumption of the recovery trend in the fourth quarter of the year is still good. In fact, we are very much impressed by the arguments in favor of the belief that the stage of the movement reached then will be more substantial than any we have had heretofore. Under the surface thus far there has always been doubt as to the permanency of the trend. If business can weather a more than seasonal slump this summer and pick up sharply in the fall, there will be far less tendency to regard the whole recovery movement as a spurt, and more inclination to give it credit for being a real swing.

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	15.3	July, 1933.....	23.4
October, 1931..	13.3	August, 1933...	21.4
January, 1932..	12.1	September, 1933	19.5
June, 1932.....	9.5	October, 1933...	19.1
July, 1932.....	9.1	November, 1933	17.7
August, 1932..	11.1	December, 1933	17.6
September, 1932	13.0	January, 1934..	18.4
October, 1932..	12.6	February, 1934.	19.1
November, 1932	10.7	March, 1934...	18.3
December, 1932	10.6	April,1934.....	17.6
January, 1933..	10.4	May, 1934.....	15.8
February, 1933.	10.1	June 1934.....	15.4
March, 1933...	10.2	June 6.....	14.8
April, 1933.....	11.4	June 13.....	15.6
May, 1933.....	15.6	June 20.....	15.7
June, 1933.....	20.6	June 27.....	15.4

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	12.6	July, 1933.....	23.2
October, 1931..	12.7	August, 1933...	23.5
January, 1932..	10.9	September, 1933	21.3
June, 1932.....	9.9	October, 1933...	20.0
July, 1932.....	9.6	November, 1933	18.4
August, 1932...	9.7	December, 1933	18.5
September,1932	12.8	January, 1934..	18.3
October, 1932..	12.3	February, 1934	16.5
November,1932	11.3	March, 1934...	16.8
December, 1932	10.9	April, 1934....	15.9
January, 1933..	10.2	May, 1934.....	14.3
February, 1933.	9.4	June 1934.....	13.1
March, 1933....	9.8	June 6.....	12.7
April, 1933.....	10.1	June 13.....	12.4
May, 1933.....	12.3	June 20.....	13.5
June, 1933.....	15.4	June 27.....	13.9

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Textile World's Price Index Numbers

Date	Cotton Index Numbers				Wool Index Numbers				Silk Index
	Cotton	Yarns	Gray	Colored	Wool	Tops	Yarns	Cloth	Raw Silk
July 31, 1914..	100	100	100	100	100	100	100	100	100
1925, average..	187	188	189	176	223	229	224	233	143
1926, " ..	140	155	157	149	184	189	179	207	136
1927, " ..	140	153	159	153	181	184	187	195	119
1928, " ..	160	162	162	166	199	202	199	197	110
1929, " ..	153	144	145	167	176	179	192	211	108
1930, " ..	108	125	123	144	127	139	161	202	179
1931, " ..	68	93	92	119	99	112	134	161	54
1932, " ..	51	76	73	100	78	97	115	128	34
1933, " ..	84	116	110	113	116	135	139	181	35
Jan. 1933.....	50	72	67	100	76	85	105	125	29
Feb. 1933.....	48	68	65	95	75	83	102	125	26
Mar. 1933.....	49	70	66	96	75	84	102	125	26
Apr. 1933.....	56	74	72	97	78	90	104	125	29
May 1933.....	69	93	94	101	104	113	116	169	34
June 1933.....	76	109	117	112	122	139	135	192	47
July 1933.....	86	138	135	131	134	153	156	201	50
Aug. 1933.....	110	170	151	147	136	157	159	217	41
Sept. 1933.....	111	156	149	147	144	177	165	222	41
Oct. 1933.....	110	152	141	144	148	179	175	222	36
Nov. 1933.....	114	146	132	144	150	179	175	222	33
Dec. 1933.....	115	146	131	144	152	179	177	222	32
Jan. 1934.....	124	151	139	144	153	180	181	222	32
Feb. 1934.....	132	148	146	144	153	180	181	222	34
Mar. 1934.....	132	149	145	142	152	178	180	209	31
Apr. 1934.....	128	144	141	141	147	176	180	209	30
May 1934.....	125	136	132	140	140	166	170	209	27
June 1934.....	132	136	132	140	138	160	169	209	26

Note: All cotton indices since Aug. 1 include processing tax.

THE PERSONAL PAGE

Herbert H. Schell, formerly executive vice-president of Sidney Blumenthal & Co., Inc., Shelton, Conn., is now president, succeeding **Sidney Blumenthal,** who continues as chairman of the board.

William R. Reiser and **Allen Rodgers** have resigned from the Allen-A Co., Kenosha, Wis., to become president and vice-president, respectively, of the Racine Feet Knitting Co., Benoit, Wis.

W. W. Neal, president of the Marion (N. C.) Knitting Mills, has accepted the chairmanship of the National Recovery Review Board.

W. P. MacDougall of Montreal was elected president of the Silk Association of Canada at the annual meeting of the organization in Toronto on June 1.

Fessenden S. Blanchard, who was granted a leave of absence for several months by the Pacific Mills that he might serve as deputy administrator of the textile section of NRA, completed his duties in Washington on July 4 and has returned to his former position with Pacific Mills. He is succeeded in NRA by **P. L. Cooney,** formerly with Walworth Mfg. Co.

F. H. Blanchard

Jos. K. Milliken

L. W. Misenheimer

H. E. Bishop

Joseph K. Milliken, of the Mount Hope Finishing Co., North Dighton, has been reelected president of the Textile Traffic Association. Other officers, also reelected, are: **P. A. Johnson,** of Aspinook Co., Jewett City, Conn., vice-president, and **F. C. P. Drummond,** of Lincoln Bleachery & Dye Works, Lonsdale, secretary-treasurer.

Paolini Gerli, of E. Gerli & Co., has been elected a director of Julius Kayser & Co., New York.

Joseph A. Conrad, for some time on the sales staff of Louis Hirsch Textile Machines, Inc., New York, has resigned to become associated again with his brother, **Oscar Conrad,** in the Conrad Hosiery Mills, Clifton, N. J.

James G. Denham, until recently assistant manager of the viscose department of Du Pont Rayon Co., has been made manager of the Acele department. He succeeds **F. S. McGregor,** who is going to Argentina for the company to investigate possibilities of building a plant there.

H. H. Iler, plant engineer, Union Bleachery, Greenville, S. C., has been elected to a membership in the Council of the American Society of Mechanical Engineers. Mr Iler also is teaching a course in power plant operation at Clemson (S. C.) College during the summer.

Dr. E. W. France, director of the Philadelphia Textile School, received the degree of Doctor of Humane Letters from Temple University, Philadelphia, at the commencement exercises of the latter institution.

Frank B. Todd has been appointed field secretary of the Boston Wool Trade Association.

Robert L. Houston has been appointed divisional administrator of Division IV, NRA, which includes textiles, to succeed **H. O. King,** who was given a leave of absence to serve as impartial administrator for the copper industry. Mr. Houston was formerly deputy administrator of Division VII.

Robert H. Gillespie, formerly president of L. & E. Stirn, New York, has become vice-president of Bernstein-Chirlian, Inc., New York, wholesalers of ribbons and fabrics for the millinery trade.

L. W. Misenheimer was elected chairman, Master Mechanics Division, S.T.A., as reported in these columns last month. Mr. Misenheimer is master mechanic of the Southern Bleachery, Inc., and Piedmont Print Works, of Taylors, S. C.

H. E. Bishop has been appointed executive secretary of the Throwsters' Research Institute, succeeding Dean Hill. Mr. Bishop has been in the textile industry twelve years; first with the U. S. Testing Co. as sales manager; then with John Dunlop & Sons Co. as assistant to the president; and recently with the Galeton Silk Mills, New York, as president and a director.

Charles H. Bertsch has been elected a director of the Globe Knitting Works, Grand Rapids, Mich., to fill the unexpired term of the late **E. A. Clements.**

Harold B. Naramore, president of the Bridgeport (Conn.) Coach Lace Co., has been appointed to the advisory board of Reconstruction Finance Corp. for the Federal Reserve District which includes New York State and Fairfield County in Connecticut.

Dr. Thomas Nelson, dean of the Textile School of North Carolina State College, sailed from New York on June 16 for Glasgow, Scotland. During the summer months Dean Nelson will visit the leading textile schools in England, Ireland, and Scotland.

E. S. Haskell, of the general crops section of the AAA, has been appointed administration member of the Code Authority for the wool trade on recommendation of Under-Secretary Tugwell.

Charles A. Cannon, president Cannon Mills Co., Kannapolis, N. C., accompanied by family and friends, has left for a trip abroad.

Benjamin Cone, Proximity Mfg. Co., Greensboro, N. C., was recently elected to a seat in the State House of Representatives by a large vote.

S. H. Croll, formerly eastern sales manager of Bradley Knitting Co., has become general sales manager of Bordeaux Knitwear, New York. **George Combes** and **Keith Culbertson** have also joined the Bordeaux organization.

B. N. Ragsdale, vice-president and general superintendent, Unity Spinning and Oakleaf plants, Callaway Mills, LaGrange, Ga., has been made personnel director of all the Callaway mills, succeeded by **T. B. Kersey.** Among other changes in this group are: **B. W. Robinson,** superintendent, Calumet plant, has been transferred to Elm City plant, succeeded by **Hal Daughdrill. P. N. Collier,** superintendent Valway Rug Mills, Inc., has been made assistant to Fuller Callaway, treasurer; **T. L. Arnett** is Mr. Collier's technical assistant. **M. M. Trotter,** superintendent, Manchester (Ga.) plant, has been made general superintendent of the Hogansville and Millstead (Ga.) plants. **H. F. Shuford,** superintendent, Elm City plant, has been made general master mechanic for Central Machine Shops, serving Callaway Mills.

Bert Hess has resigned as plant manager of the Pawtucket (R. I.) branch of the U. S. Finishing Co.

D. C. Jones has been made superintendent Oconee Textiles, Inc., Westminster, S. C., succeeding **W. D. Jenkins,** resigned.

William A. J. Kopp has retired as superintendent and general manager of the American Velvet Co., Stonington, Conn.

G. C. Stevens, formerly of the McPar Hosiery Mills, Marion, N. C., is now superintendent of the Old Fort (N. C.) Hosiery Mills.

J. H. Clark has been appointed superintendent of the Campbell Cotton Mills, Maiden, N. C.

C. R. Flos, former superintendent of the Standard Shade Roller Co., Ogdensburg, N. Y., has taken the position as export trade manager of the Western Shade Cloth Co., New York.

Textile Calendar

Southern Textile Exposition, Eleventh Annual Exhibit, Textile Hall, Greenville, S. C., Oct. 15 to 20, 1934.

American Society of Mechanical Engineers, Textile Division, meeting with Greenville Section, Greenville, S. C., Oct. 15, 1934.

Federated Textile Industries, Inc., successor to Silk Association of America, Annual Dinner, Waldorf-Astoria Hotel, New York, Feb. 28, 1935.

J. W. Boozer, formerly associated with the Irene Mill, Gaffney, S. C., has accepted the position of superintendent of the bleachery at the Halifax Cotton Mills, South Boston, Va.

W. T. Snowden has been appointed superintendent of the new cloth weaving department of Regent Knitting Mills, Ltd., St. Jerome, Que., and **S. Hirst** has been named as overseer of woolen carding and spinning. Mr. Snowden was formerly superintendent of the Carleton Place Woolen Mills.

Frank B. Sargent, cost accountant for the Nonquitt Spinning Co., New Bedford from 1912 to 1927 and since that time with the Sanford (Me.) Mills, has resigned to accept an executive position with the Lawton Spinning Co., Woonsocket, R. I.

John Mellor has been made designer and overseer of weaving at Taber Mills, New Bedford. **Henry Carse** has been named overseer of slashing, drawing-in, and silk and rayon processing. **Howard A. Wade** is the new overseer of spinning and weaving and **Louis Sears** has been made master mechanic and engineer.

J. R. Federline, Jr., of Lanett, Ala., has been appointed superintendent of the Seminole Mills, Clearwater, S. C.

S. J. Burden has been appointed assistant superintendent of Hartwell (Ga.) Mills No. 1.

L. E. Hopper has been appointed assistant superintendent of Balfour (N. C.) Mills.

J. L. Reinhardt has been appointed superintendent of spinning, spooling and warping at the Appleton Co., Anderson, S. C.

W. L. Lowery has become superintendent of weaving at Lancaster (S. C.) Cotton Mills.

J. G. Sutherland, who has been in charge of the mills of the Canadian Cottons, Ltd., in St. John, has been appointed night superintendent of the firm's Stormont mill.

E. T. Combs has been appointed superintendent of the Cliffside Mills, Cliffside, **N. C.**

J. D. Templeton, formerly associated with the Red River (S. C.) Mills, is now superintendent of the spinning division of the No. 1 plant of the Springs Cotton Mills, Fort Mill, S. C.

James O. Elmoil has accepted the superintendency of the fancy weaving division of the Lancaster, S. C., plant of the Springs Cotton Mills. He was formerly superintendent of the weaving division of the Watts Mills, Laurens, S. C.

M. C. Ewing has been made general superintendent of the Campbell Mfg. Co., Maiden, N. C., having resigned as overseer of carding and spinning, Carolina Mills Inc., also of Maiden.

R. C. Veach, formerly assistant superintendent, Rock Fish Mills, No. 2, Hope Mills, N. C., is now superintendent of Morgan Mills, Raeford, N. C.

John C. Marley has become overseer of finishing for the Holden-Leonard Co., Bennington, Vt.

J. W. McElhannon has resigned as superintendent, Selma Mfg. Co., Birmingham, Ala., to become general superintendent Eagle & Phenix Mills, Columbus, Ga.

Pathé News

Henry Ford watches a loom running on upholstery for his V-8s. The scene is at the Shelton Looms display in the new Ford building at the Century of Progress Exposition in Chicago. The Shelton Looms exhibit, which features the mohair velvets this firm supplies to the Ford Motor Co., also includes a stuffed angora goat of the breed supplying the fibers used in weaving mohair velvet, and a wide variety of Shelton fabrics.

George D. Fryfogle, superintendent, Duck Mill, Brandon Corp., Greenville, S. C., has been promoted to general superintendent, Brandon Mill and Duck Mill, succeeding the late **W. F. Davis,** superintendent, Brandon Mill.

D. L. Wall has resigned as superintendent, Bemis Bro. Bag Co. cotton mill, Bemiston, Ala., and **H. B. Bergfeld** has been promoted to succeed him.

J. L. Barnwell has succeeded **M. W. Mayes** as superintendent Tifton (Ga.) Cotton Mills.

W. L. Phillips, superintendent, Mary Delia Mfg. Co., has been made superintendent, Riverside Mills, Augusta, Ga.

W. B. Nance has been made superintendent Union Mills Co., Monroe, N. C.

W. C. Bowden, formerly with Waxahachie (Tex.) Cotton Mills has been appointed superintendent, Houston (Tex.) Cotton Mills Co.

W. B. Harris, formerly superintendent, Monroe (N. C.) Mills Co., has been made superintendent Cartex Mills, Inc., Salisbury, N. C.

J. C. Boyce has been made superintendent Jackson Mills No. 1, Iva, S. C.

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Obituary

Edward B. Jennings, president of the Algonquin Printing Co., Fall River, died June 30.

Everett Carleton, aged 74, head of E. G. Carleton & Sons, Rochdale, Mass., died June 9.

E. L. Dowling, who founded Ozark (Ala.) Cotton Mills, died recently.

John R. Jones, aged 83, secretary-treasurer of Sanford (N. C.) Cotton Mills until his retirement a year ago, died recently.

John C. Abbot, aged 63, treasurer and general manager of Abbot Worsted Co., operating mills in Forge Village, Graniteville, Brookside and Lowell, Mass., died June 14.

Nathaniel B. Borden, treasurer of Barnard Mfg. Co., Fall River, Mass., for many years and later active as a cloth broker, died June 24 at the age of 63.

Frederick A. Stearns, 74-year-old retired wool broker of Boston, Mass., died June 11 at his home in Waltham. He was associated with Blake & Stearns from 1875 till 1931.

Frank S. Weaver, aged 66, president and treasurer of the Ephrata (Pa.) Hosiery Mill, Inc., died July 5.

Samuel Rindge, special partner in Parker, Wilder & Co., with whom he had been associated since 1882, died July 8 at Wellesley, Mass., aged 78 years.

Frank B. Hopewell, aged 60, treasurer of Sanford (Me.) Mills, died on June 6 while visiting the plant. His home was in Newton, Mass.

A. M. J. Cochran, aged 80, president of January & Wood Co., Maysville, Ky., died June 12.

Augustus W. Smith, aged 72, president and treasurer of the Brandon Corp., died at his home in Greenville, S. C., June 13. In 1900 he organized the Woodruff Cotton Mills of which he became president. He was also associated with the Union and Buffalo Mills and became president of Brandon in 1914.

Aug. W. Smith

W. O. Jones, salesman for Steel Heddle Mfg. Co. and director in Southern Shuttles, Inc., Greenville, S. C., died at his home last month.

T. S. Raworth, aged 79, formerly president of the Sibley Mfg. Co., Augusta, Ga., died recently at his home in Augusta.

George C. Goodman, aged 78, for many years secretary-treasurer of Mooresville (N. C.) Cotton Mills, died June 19.

Martin W. Shaughnessy, vice-president and sales manager of Shaughnessy Knitting Co., Watertown, N. Y., died June 18.

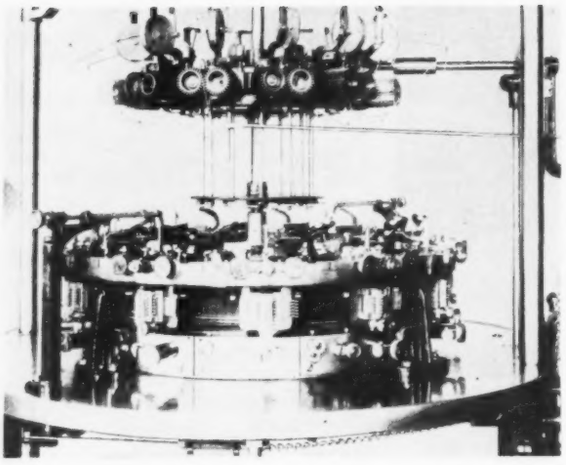
James P. Costello, superintendent of the Real Silk Hosiery Mills, Indianapolis, Ind., died June 9.

Charles C. Cozzens, aged 70, one of the original and oldest salesmen of Steel Heddle Mfg. Co., Philadelphia, died on June 18.

Louis Loughlin, aged 34, superintendent of China Grove (N. C.) Cotton Mills, was killed in an automobile accident June 20.

James Leander Adams, aged 53, for many years superintendent and general manager of the old Carhart Mfg. Co. (now Cutter Mfg. Co.), Rock Hill, S. C., died June 30.

NEW MACHINERY



Quick-Change Spring-Needle Machine

Simplicity and speed of pattern change, as well as extended design capacity, are offered by a twelve-step-presser spring-needle circular knitting machine which Wildman Mfg. Co., Norristown, Pa., has announced. A comparison made between the new model, designated as Style FBSS-6, and previous models indicates that in changing from plain fabrics to say, "twilsheen" (in which every other needle works on every other feed), the new machine reduces the time required for the change-over from one-half day to about 2 min.; and the time needed for changing many presser patterns, from nearly a day to little more than 1 min. The twelve-step presser mechanism, as compared with the former two-step, means an increase in design capacity of 600%.

The machine is suitable for either underwear or outerwear, but is built on the so-called underwear principle—that is, with longer needle and longer presser than on the "regular" machines. It will probably be installed mainly in 28-cut.

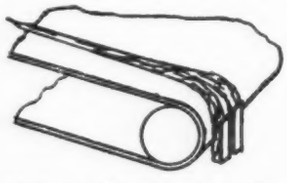
The individual pressers, made with butts at twelve different levels, can be pressed collectively or individually. They can be manipulated by the regular presser cam in the cap or by one of the twelve presser cams located in one of the brackets attached, as shown, to the underside of the cap. The cams in these brackets are located one above the other at levels corresponding to those of the presser butts, and can be moved into or out of action by merely pushing the slides which are seen to project slightly from the right of each bracket. The simplicity of the adjustment is indicated by the fact that the cams could be shifted, if it were desirable, while the machine is in operation.

In the photograph the pressers are shown arranged with the butts in diagonal sequence, but they can be arranged in any order or grouping. In the case of such changes, of course, the pressers must be pulled out and replaced, as in earlier models; but the fact that it is possible to have any presser moved by any cam further increases the design capacity of the machine.

In addition to simplifying presser changes, the new machine offers a much easier method than formerly employed for changing float patterns. Whereas on earlier models it was necessary to pull the cylinder out, take out all casings, and relocate the cylinder cams for the long- and short-butt needles, all that is now required to manipulate these cams is to turn a set of conveniently located thumbscrews. No more than a very slight turn is necessary in the case of each screw, and the time required for the change-over is therefore negligible.

Attachment for Tape Condensers

A device, consisting of two guiding rolls, whereby it is possible to reduce the number of roping ends of a tape condenser by one-half and to double their size, has been developed by Davis & Furber Machine Co., North Andover, Mass. The fact that the change can be made quickly is featured. When producing one-half the former number of ropings, two slivers, carried by two tapes, are doubled together and condensed into a single roping. Half the condensing aprons are not used and are moved away from the tapes so



that they will not be in position to take slivers. The new guide rolls accomplish the purpose of guiding the runs of the tapes into close proximity so that two slivers form one roping.

The company states that the attachment can be applied to all tape condensers of foreign or domestic design, and to both the shallow-grooved and deep-grooved types.

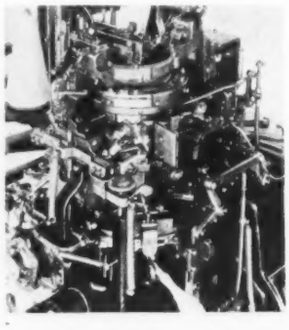
Quick-Setting Acid-Proof Cement

A sodium silicate cement said to be completely resistant to steam, hot and cold water, hot and cold salt solutions of all strengths, and hot and cold acids of all strengths, has been introduced recently by Pen-Chlor, Inc., Widener Bldg., Philadelphia. The material, known as Penchlor acid-proof cement, withstands acids (except hydrofluoric), ammonia, and bleaching powder solutions, but is not resistant to most alkalis. The cement is quick-setting and selfhardening, taking an initial set at 70° F. in 20 to 25 min. after mixing the powder with sodium silicate solution. The work is ready for use after three days at this temperature without further treatment. The cement adheres to iron, steel, lead, wood, glass, brick, and stoneware.

Split-Foot Attachments

In an endeavor to simplify the formerly difficult stitch-cam adjustments on the auxiliary side of the split-foot hosiery machine, Hemphill Co., Pawtucket, R. I., has announced three new devices which will make it possible for the fixer to adjust the machine quickly to assure even knitting throughout the entire length of the stocking.

The first device is a micro-control auxiliary stitch-cam mounting. The construction of the auxiliary cam-plate slide bracket has been changed and the bracket has been pivoted at the top of the auxiliary sliding



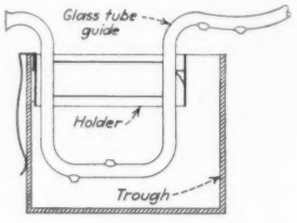
bar. Micro-screw control is provided to speed up and simplify the work of the fixer in evening out the stitch on the auxiliary side throughout the instep and top of foot.

The second device is a synchronized tension control which has been applied to all yarns that are knitted in reciprocation. Its purpose is to eliminate the lines in the reciprocating knitting throughout the instep and top of foot close to the suture seam, these lines being sometimes caused by the yarn take-up having unequal tension as the position of the cylinder changes. With the new tension-control device the drag on the yarn is said to be always the same regardless of the position of the cylinder while reciprocating.

Finally, an automatic auxiliary sinker-cam action has been provided. This involves a new movable sinker cam applied to the split-foot sinker cap on the auxiliary side. It gives the sinker a deeper thrust at the casting-off position and evens out the reciprocating-knitting stitch, making the stitch throughout the instep and top of foot the same as the stitch in all other parts of the stocking.

Thread-Soaking Guide

The "Taco Thread Soaking Guide," for wetting the silk thread on full-fashioned hosiery machines, has been announced by Textile Appliance Co., Reading, Pa. The device consists of a tempered glass tube with suitable perforations, running into and out of a trough containing water. Any troughs may be used as the thread does not travel directly through the trough, but rather through the guide, which is designed to contain a uniform amount of liquid and to give several wiping contacts to aid penetration. The outlet end of the tube or guide has a curved section and drain



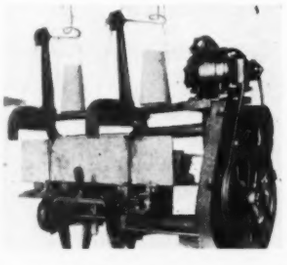
holes, and it is asserted that this type of construction traps and drains off any excess moisture carried by the thread. When necessary, the guides may be cleaned with a mild solution of water and muriatic acid. The manufacturer states that satisfactory results have been secured by using cones without pre-conditioning.

Single-Head Thread Spool

A single-head, paper, thread spool, with one tapered head, has been developed by the Sonoco Products Co., Hartsville, S. C. The spool is designed to prevent the thread from hanging under the package when delivering, since the tapered head rests flat when delivering in an upright position. The company is prepared to furnish the spool in all sizes. Universal Winding Co., 95 South St., Boston, Mass., has developed a taper-end attachment for its winders to handle the new spool.

Double Skein Tier

A double tier for silk and rayon skeins, No. 5GDFS, has been placed on the market by

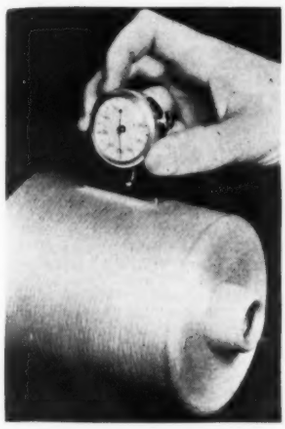


the National Bundle Tyer Co., Blissfield, Mich. The company states that mill operation shows production to be twice that of the old, single model. In operation, a set of skeins is dropped into the feeder, which is then pushed forward and the ties made. The feeder then drops back to receive another set of skeins. The speed of the machine is limited only by the speed at which the operative can drop skeins into the feeder.

Density Gage

A gage for testing the density of silk and rayon cones, weaving cops, spools, and other yarn packages, has been developed by the Federal Products Corp., 1144

AND PROCESSES



Eddy St., Providence, R. I. In use, a standard density is set for a given type of package, and then maintained by systematically checking the products of the coning, copping, or spooling machine. A uniform delivery for supply packages can thus be obtained. A plunger, actuating the dial, extends slightly below the flat base of the gage. To determine the density of a package, it is merely necessary to press the plunger against the cone or cop until the flat base makes contact; the result may then be read on the dial.

Attachment for Producing "Pineapple" Cone

A taper-end attachment for its No. 50 winder, which produces a "pineapple" cone particularly designed to meet the needs of the three-carrier system of knitting, has been developed by Universal Winding Co., 95 South St., Boston, Mass. Advantages cited for this type of package are: free delivery of the silk from beginning to end, assuring uniform tension at the knitting machine; the sharp taper at the bottom of the package prevents the yarn from catching and reduces press-offs; the tapered nose of the cone assists the operative in placing knots quickly where they will be out of the way when the silk is run off.

Regular, square-end packages may be wound on a machine equipped with the attachment when desired. In addition to silk, any textile fiber can be handled where a tapered end is desirable. The company believes that the new attachment will prove particularly useful in winding Lastex.

Ceramic Guides, and Other Accessories

A line of made-to-order ceramic thread guides, creel supports, rollers, tubes, rods, etc., moulded from "Alsimag," is offered by American Lava Corp., Chattanooga, Tenn. Alsimag is described as a ceramic product resembling porcelain. Although it can be glazed, the manufacturer recommends that where possible it be used unglazed but polished, as better wearing qualities are thus obtained. Other listed features of the material are: after firing it has a hardness comparable to topaz; it is proof against acids and chemicals; it possesses high mechanical strength; the high resistance to wear keeps the surface smooth in use.

New Quiller Tension

A tension device, designed to maintain a uniform tension in the winding of silk or rayon quills, regardless of whether the spool is full or small, is being made by Sipp-Eastwood Corp., Keen & Summer Sts., Paterson, N. J. and offered for sale by Paterson (N. J.) Silk Machinery Exchange, Inc.

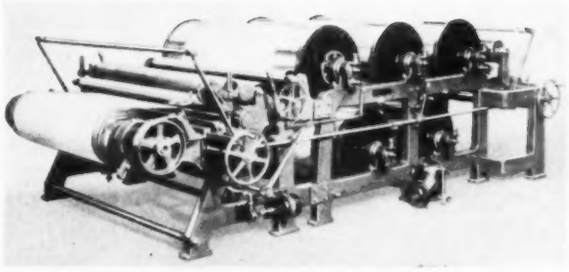
Another feature is that various types of thread may be run without changing the tension.

It is stated that with the new device, the operative can start the spindle at full speed, thus increasing efficiency, and that the starting lever may be pulled with one hand without touching the thread with the other.

High-Speed Machine for Sizing Rayon

Van Vlaanderen Machine Co. Paterson, New Jersey, has developed a new high-speed rayon warp sizer, known as the Master Warp Finisher, Model VV. The machine is of the five-cylinder type, with stainless steel cylinders and size pan. It has a new, patented system for the elimination of condensation, with built-in trap. Neither straps nor weights are used on the let-off beam, the tension being controlled by a simple handwheel which is designed to give absolutely smooth unwinding of the warp. The size-appliance section consists of a two- or three-roll quetsch equipped with a simple pressure arrangement and guide rollers to allow different methods of applying the size solution. All gears and gear clattering have been eliminated from the cylinder drive.

An oscillating roller, which imparts a slight cross wind to the warp, is said to prevent slack and tight ends on the loom beam. The take-up is driven by a differential disk friction drive with a simple adjustment for any required tension on the warp. The machine is motor driven and has a crawling speed and variable high speed. Starting and stopping can be effected on all sides of the machine. One of the important features of this new machine is that the complete absence of obstructive piping makes it convenient for the operator to reach any inside point. Another feature is a mechanical temperature control with individual valves and thermometers. Fittings for an automatic temperature control are included with the machine if desired. The sizer is also equipped with a size mixing and supplying tank and a circulating size solution system, which furnishes fresh solution at a controlled temperature and even level in the size pan.

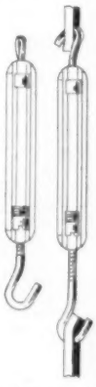


Still another feature is an automatic cut marker which can be adjusted to any length of cut. A double-check measuring system for raw and sized yardage ascertains the percentage of stretch, and is assisted by a stretch regulator with a scale. Ball bearings and conveniently located fittings for lubrication are employed to insure free running and long life to wearing parts. All running parts of the machine from let-off to take-up are synchronized to eliminate any injury or undue pull and breakage of the yarn. The frame is of cast iron.

Self-Contained Sprinkler

An automatic, chemical sprinkler, designed for use in remote sections without water-sprinkler protection, or where loss through water or chemical damage is to be avoided, has been placed on the market by Firetox System, Inc., Attleboro, Mass. The company states that one or more of the aluminum units, providing protection for a given number of cubic feet of space, are suspended from the ceiling. Should a fire occur within the protected area, the excessive heat develops a pressure within the unit and melts the low-melting-point solder of the sprinkler head. A chemical spray is thereupon released under pressure, which, coming in contact with the heated air, forms a non-poisonous gas, five times heavier than air, to blanket the flame. It is asserted that no chemical damage occurs and that, until the unit operates, there is no evaporation, freezing, corrosion, deterioration, or maintenance cost. No piping is necessary.

Harness Adjuster



A harness adjuster, said to be positively locked and still quickly adjustable, has been placed on the market by Steel Heddle Mfg. Co., 2100 W. Allegheny Ave., Philadelphia, Pa. The length is adjusted by lifting the locknut from the seat, giving the necessary turns to the regulating screw, and then dropping the locknut in place. A variation of 1¾ in. in length and any degree of fineness are possible. The adjuster is furnished in a rust-proof finish, and with a hook at both ends. (No. 6-A), or a hook at one end and an eye at the other (No. 6), and with leather straps at both ends if desired.

Stainless-Steel Floats

Stainless-steel floats have been added to the line produced by W. H. Nicholson & Co., 156 Oregon St., Wilkes-Barre, Pa. The use of stainless steel makes the floats suitable for use in tanks and other apparatus handling corrosive liquids.

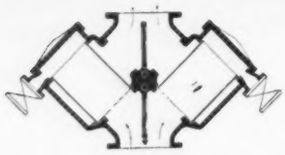
Twin-Basket Strainer

Designed for cleaning water for general service requirements and embodying a backwashing feature whereby the strainer is cleaned in operation without removing the strainer basket, the Phillips Twin-Basket Strainer has been announced by Freyn Engineering Co., 310 S. Michigan Ave., Chicago. Two cylindrical baskets, perforated to give the desired screen opening, are placed at 90° angles and the flow of water controlled by two swinging gate valves.

Under normal operating conditions, water flows through both baskets. When it is desired to clean one strainer, the bottom gate valve is closed and the bypass valve of the basket opened. Clean water flowing past the open basket backwashes the dirty strainer and flows out through the bypass valve. When the operation is completed, normal conditions are again in effect. A strainer may be removed for inspection by shutting off both gate valves.

Mechanical features men-

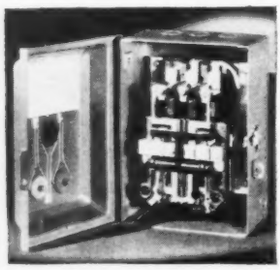
NEW MACHINERY & PROCESSES



tioned by the manufacturer include: swinging gate-valve consists of bronze disk held against bronze seat by line pressure; disk carried on stainless-steel shaft held in live-rubber bushings; baskets provided with ⅛-in., or larger, perforations; strainer housing made of cast iron or of cast steel, according to pressure requirements; strainer may be mounted in any position.

Solenoid Motor-Starter

Square D Co., Industrial Controller Division, Milwaukee, Wis., has developed a solenoid-type automatic electric motor-starter with the following features: contactor has a vertical, straight line, solenoid action and cannot be accidentally closed by vibration; flexible leads have been entirely eliminated; thermal overload relays are mounted on the front of the panel and are interchangeable; extra wiring space is provided in the cabinet and the push buttons on the cover are extra large (1 in. diameter); insulating base arc barriers are porcelain, which does not carbonize nor readily collect dust. Starter has maximum polyphase ratings of 5 hp., 220 volts; 7½ hp., 440 to 550 volts.



Diaphragm Valve

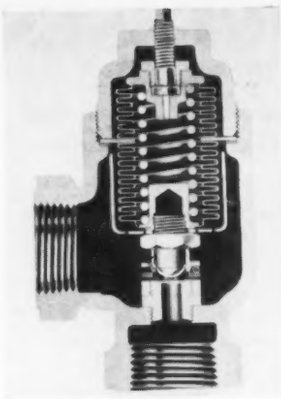
Bristol Co., Waterbury, Conn., has placed on the market its Synchro Diaphragm Motor Valve, designed primarily for air-operated control systems and said to possess the following features: Immediate response to changes in air pressure; stem position for a given pressure is the same whether the pressure is rising or falling; no hysteresis or friction loss in the top movement; ample space for renewing stem packing without disturbing adjustments; top may be removed or spring replaced without changing setting of the spring follower.

Non-Reversing Magnetic Timestarters

Designed for the remote control of constant- and adjustable-speed direct current motors, a new line of non-reversing timestarters, Class 8513, has been brought out by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Motors up to 10 hp., 115 volts and 20 hp., 230 and 550 volts can be handled, the starters providing two points of definite, magnetic, time-limit acceleration on the 10-hp. and smaller motors and three points on the 15- and 20-hp. motors. Features stressed by the manufacturer include: magnetic time-limit acceleration brings the motor up to speed in a definite time regardless of load; the time element is provided by magnetic means and is adjustable; dual-reset overload protection permits choice of either hand or automatic reset; smooth acceleration to full speed is provided on adjustable-speed starters by a vibrating type of field accelerating relay; a quick stop on adjustable-speed motors is provided by the application of full field strength during dynamic braking.

Thermostatic Steam Trap

An improved, thermostatic steam trap has been brought out by C. J. Tagliabue Mfg. Co., Park & Nostrand Aves., Brooklyn, N. Y. An adjusting screw, located at the top of the trap, may be set to discharge condensate at a temperature corresponding to as much as 20 lb. less than the operating steam pressure, whether it is 50, 75, or 125 lb., without further adjustment. Other features stressed by the manufacturer are: renewable and reversible, double-life, Monel seat; renewable stainless-steel, ball valve; renewable guide holds the ball valve central to the seat. The trap is available in ½-, ¾-, and 1-in. sizes.



Threadless Pipe Coupling

The joining of plain pipe ends, without threading or grooving, is made possible by a coupling brought out by Champion Machine & Forging Co., 3695 E. 78th St., Cleveland, Ohio. The coupling consists of two half-coupling sections which contain gripping devices, a gasket with metal-protected sections, and two bolts. Advantages claimed are that joints can be made made at low cost by unskilled labor and joints can be broken down and made up again any number of times without impairing the efficiency of the coupling. Couplings have been assembled on pipe and tested up to 4,000 lb. per sq.in. by the manufacturer.

NEW PUBLICATIONS

Carpet Designs & Designing; By Frederick J. Mayers; F. Lewis, Ltd., Benfleet, England; Marmor Book & Art Shop, Inc., New York, agent in U. S.; price $6.50.

The purpose of this book is to provide all the technical information and practical instruction necessary to the carpet designer and to make available data which will be of value to others who are connected, directly or indirectly, with the carpet industry. The author has had many years of practical experience as a free-lance and mill designer, both in this country and in Europe. Among the subjects treated are hand-made carpets; hooked rugs and carpets; jacquard fabrics; chenille and axminster carpets; carpet design and tradition; principles of design applied to carpets; and training of designers.

Hawley Conversion Tables; H. W. Hawley, New York, N. Y.; price 50c.

This is a booklet giving general information of use to importers and others. It contains conversion tables of foreign exchange, and weights and measures, as well as distances between various ports, etc.

Economics of Clothing and Textiles, by William H. Dooley; D. C. Heath & Co., Boston, Mass.; 693 pages; price $5.00.

This volume by the principal of the Textile High School, New York, presents a study and analysis of the problems affecting the clothing and textile industries, including buying and selling, money and credit, patents and trademarks, accounting and cost finding, advertising and business ethics, the business cycle and factors in consumption. The book starts with two interesting chapters on the psychological and sociological basis of clothing. It directs its appeal not only to the student of economics but to manufacturers, stylists, advertisers and salesmen.

English Decorative Fabrics of the Sixteenth to Eighteenth Centuries; By A. F. Kendrick; F. Lewis, Ltd., Benfleet, England; Marmor Book & Art Shop, New York, agent in U. S.; price, $10.50.

This book contains illustrations of 60 fabrics selected to demonstrate the development of English ornament during the period under consideration. Embroidered and woven fabrics illustrated include upholstery, book bindings, tapestries, carpets, etc.

Cotton Year Book, 1934; Textile Mercury, 41 Spring Gardens, Manchester, England; price 7s. 6d.

In the 29th edition of this well-known annual publication, the section on costing and wages has been revised, that on rayon has been amplified, and that on dyeing and finishing has been extended to cover the numerous recent developments. The book contains the usual comprehensive review of the cotton trade for the preceding year, makes note of technical progress in the various divisions of the cotton manufacturing industry.

Textile Recorder Year Book, 1934; Edited by Stephen Major; Harlequin Press Co., Ltd., Old Colony House, Manchester, England; price 8s. 6d.

New features of this edition are sections on wool and mildew and on the lubrication of textile machinery. The chapters on cotton buying and selling and worsted spinning have been entirely rewritten. Where necessary, statistical data, tables of production, etc., have been revised. A bibliography of new textile equipment introduced in England during the last year is included.

Sizing Ingredients That Are Partly or Wholly Insoluble, and Those That Are Soluble or Emulsifiable; United States Institute for Textile Research, Inc., 65 Franklin St., Boston, Mass.

The purpose of this bulletin is to supply the gray goods manufacturer with a classified list of sizing materials, in order that he may employ only those materials which can be easily removed by the finisher.

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Business Literature

Rayon Plant Location. Union Gas & Electric Co., Cincinnati, Ohio. Detailed report "Cincinnati as a Location for a Rayon Mill" setting forth essential facts on labor, taxes, power, etc.

Cleaning. J. B. Ford Co., Wyandotte, Mich. Booklet entitled "Maintenance Cleaning Illustrated" and containing information on the use of Wyandotte Detergent for cleaning painted surfaces, floors, porcelain, etc.

Protective Welding Lens. Lincoln Electric Co., Cleveland, Ohio. Pamphlet describing importance of properly selecting a protective welding lens.

Power Transmission. T. B. Woods Sons Co., Chambersburg, Pa. Folder describing the U.G. Automatic Belt Contactor.

Insulated Cable. General Electric Co., Schenectady, N. Y. New 80-page reference book, designated as GEA-1837, on "How to Select Insulated Cable."

Power Transmission. Link-Belt Co., Chicago. Illustrated catalog of 32 pages, No. 1415, containing engineering data, etc., on single, double and triple reduction units of herringbone-gear type; also flexible couplings.

Used Machinery. Consolidated Products, Co., 15 Park Row, New York. June issue of "Consolidated News" contains article on place of used machinery in national recovery.

Lubrication. Whitin Machine Works, Whitinsville, Mass. Illustrated bulletin giving instructions for lubricating various types of Whitin textile machinery.

Power Transmission. Medart Co., St. Louis, Mo. A 42-page loose-leaf booklet termed "Data and Price List" containing engineering and purchasing information on all types of Medart V-Belt Drives.

Compressors. Worthington Pump & Machinery Co., Harrison, N. J. Catalog showing horizontal duplex motor-driven compressors.

Flow Meters. Republic Flow Meters Co., Chicago. Catalog (No. 700) showing design and application of flow meters with "cartridge sealed" elements and other types of reading and recording instruments.

Warp or Jack Spooling. Davis & Furber Machine Co., North Andover, Mass. Booklet describing various types of spoolers manufactured, and ex-

plaining conditions under which each should be used. Performance data on new Model 44 is given.

Launder-Ometer. Atlas Electric Devices Co., 361 W. Superior St., Chicago. Bulletin describing construction and use of the "Launder-Ometer," an electrically operated laboratory washing machine for making tests.

Buying. Steel Heddle Mfg. Co., 2100 W. Allegheny Ave., Philadelphia. Booklet designed as a help to those buying any type of equipment and especially loom harness.

BUSINESS NEWS

Ernest M. ("Plute") Potter, for 20 years a resident of Charlotte, N. C., has been appointed sales engineer to represent the **New Departure Mfg. Co.,** manufacturers of New Departure ball bearings, in the southern territory. Mr. Potter, who has recently specialized in the textile field, will retain his headquarters at 913 First National Bank Building, Charlotte.

B. F. Goodrich Co., Akron, Ohio, has announced that J. C. Herbert, assistant counsel, has been elected vice-president and general manager of Pacific Goodrich Rubber Co.

Westinghouse Electric & Mfg. Co. has appointed A. D. Hunt manager of engineering at the South Philadelphia plant, succeeding John M. Lessells, who has resigned to open an office as consulting engineer.

Dayton Rubber Mfg. Co., Dayton, Ohio, has appointed Edward P. Spore as district representative, to be in charge of distribution and sales of Dayton's complete line of V-belts and pulleys for all types of industrial service in the Southwest, effective July 1.

Durlron Co., Dayton, Ohio, manufacturers of acid and alkali handling equipment, has started construction of an extension to its alloy-steel foundry.

Leon Kimmel Machinery Co., with offices in Atlanta, Ga., and Providence, R. I., is continuing the business of the Comer-Kimmel Machinery Co., the latter firm having been dissolved. The company deals in textile machinery and supplies and handles liquidations and appraisals.

Whiting Corp., Harvey, Ill., maker of cranes, foundry equipment, etc., is this year celebrating its 50 anniversary. The company was begun in 1884 when John Hill Whiting (now chairman of the board) went into business as the Detroit Foundry Equipment Co. In 1894 the plant moved to Harvey and has since greatly expanded its activities.

Consolidated Products Co., Inc., has largely increased the space available for its offices on the 20th floor of 15 Park Row, New York, by adding private offices and expanding clerical space.

Carolina Aniline & Extract Co. has been organized at Charlotte, N. C., to manufacture textile chemicals and oils. The new company, headed by G. S. McCarty as president, has an authorized capital stock of $25,000. Financially associated with Mr. McCarty in the new enterprise is William W. Ray, of Pittsburgh.

Textile Specialty Co., Inc., Greensboro, N. C., will erect a new one-story brick building, 60x103 ft., at a cost of $8,800. It will house the company's loom reed manufacturing equipment.

C. P. McMahan has joined the the mill supply firm of **Montgomery & Crawford Co.,** Spartanburg, S. C. He was formerly superintendent of the roller covering division of Henrietta (N. C.) Mills.

Commercial Investment Trust Corp., New York, has announced the acquisition of Midland Acceptance Corp. with headquarters at Cincinnati.

Roller Bearing Co. of America, Trenton, N. J., has promoted E. C. Gainsborg from the position of sales manager to that of general manager.

Louis Allis Co., Milwaukee, Wis., has opened a direct factory branch at Atlanta, Ga., in charge of George C. Gardner.

Joseph T. Ryerson & Son, Inc., Chicago, has completed an addition of approximately 40,000 sq. ft. of floor space to its St. Louis branch.

Link-Belt Co., Chicago, has an enlarged exhibit at this year's Century of Progress Exposition.

Bausch & Lomb Optical Co., Rochester, N. Y., will throw its plant open to visitors at the Rochester Centennial, Aug. 20 to 25.

Swartwout Co., Cleveland, has placed B. K. Paget in charge of the ventilation division.

Norma-Hoffmann Bearings Corp., Stamford, Conn., has appointed E. W. Lawrence southern factory representative. His headquarters will be in Charlotte, N. C.

Jackson Moistening Co., Providence, R. I., has appointed G. A. White, Charlotte, N. C., southern representative.

Corn Products Refining Co. has transferred Albert G. Smith from Greenville, S. C., to the home office in New York City. He will call on the textile trade in that section.

Canadian Industries, Ltd., Montreal, has been appointed Canadian distributors for **B. Laporte, Ltd.,** Luton, England, chemical manufacturers. Gordon D. Pratt, formerly Canadian representative for Laporte, has joined the staff of Canadian Industries.

Dr. R. O. Morgan, who has been in charge of the laundry laboratory of the National Research Laboratories in Ottawa, Canada, since its opening, has resigned to accept a position with the **National Aniline & Chemical Co.,** at Buffalo, N. Y.

Textile Exhibitors Meet

The annual meeting of the Textile Exhibitors Association was held in Boston on June 11 and the entire old board of directors re-elected with the exception of Frederick H. Bishop, who recently retired from active business on the occasion of his 86th birthday. Mr. Bishop was elected an honorary director and his place on the board was taken by Robert A. Leeson, president of the Universal Winding Co. Officers elected were: President, Edward P. Hathaway; vice-president, Wallace I. Stimpson; secretary-treasurer, Albert C. Rau.

There was a division of opinion on the question of whether a Textile Exhibition would be held in Boston in 1935. It was decided that stockholders and exhibitors be canvassed to secure their opinion.

Textile Machinery Show in England This Fall

An exhibition of textile machinery is to be held in Manchester, England, this fall, which it is hoped will attract buyer-visitors from Russia, Japan, China, India, Germany, France, the United States and other countries. The exhibition will open at the City Hall, Manchester, on Oct. 26. A visit of Soviet representatives is expected who are stated to be contemplating the purchase of textile machinery to the value of £3,000,000.

Propose a "Textile Institute" for Canada

At the annual meeting of the Silk Association of Canada, held in Toronto, Ont., June 2, the proposal was made that a Textile Institute of Canada be formed. The suggested organization is to be merely of a skeleton type without cost to the textile industry and to function only when necessary.

Free Help to Inventors

A clearing-house for inventors' problems, known as Inventors Foundation, Inc., has been established in the Chanin Building, 122 East 42nd St., New York, under the sponsorship of Henry J. Gaisman, originator of the autographic camera, safety razors, etc. It will offer free advice to inventors on patenting and commercializing their inventions and to manufacturers on safeguarding their new products.

One thousand of these posters, featuring the next Southern Textile Exposition, will hang in the outer offices of textile mills. The poster is by a Greenville artist, Sidney Lowe. Most of the available space in Textile Hall, Greenville, has been sold to over 100 exhibitors. Attendance by the general public will be limited to two or three days, the remainder being reserved for the trade.

Employment Still Gaining

Men and women are still going back to work, although employment gains are not so rapid as they were in the early spring. Unemployment estimate by the American Federation of Labor for the country as a whole shows that nearly 300,000 went back to work in May, and trade union reports for the first part of June show employment still gaining. Trade union weighted figures show 20.7% of the membership unemployed in April, 20% in May (revised) and 19.7% in early June (preliminary).

Minimum Prices Under Codes

Although NRA will not sanction price fixing in pending codes, according to announcement last month, it is stated that price provisions in approved codes will not be changed. Where approved codes have no other price provisions, it still seems possible to gain approval of a minimum price if it can be shown to the satisfaction of the Administrator's office that a real emergency exists in the industry concerned. It is understood that the most efficient producer's costs will then be taken as basis for minimum.

Federal Prison Industries Bill Becomes Law

Cotton duck manufacturers who fought the Federal Government's operation of a duck mill at its Atlanta prison, are gratified at the passage of the Tarver-George Prison Industries Bill which was signed by the President on June 26. This bill authorizes the diversification of such prison industries as are under Federal control, and provides for a board of five members appointed by the President to establish policies. It is believed that under this system adverse competition with private industry will be minimized.

TEXTILE WORLD'S

Cotton Digest

ACTION by groups seems to offer most promise in the war against design piracy. Consequently an important step forward was taken within the Association of Cotton Textile Merchants of New York when the manufacturers and selling agents of furniture slip-covers, furniture upholstery, day-bed and drapery fabrics entered into an agreement with reference to this evil. This group agrees not to commit or be party to the piracy of designs originated by fellow-members of the group and further agrees to submit controversial cases to a committee and to abide by the decision of that committee.

Similar action by all groups in which the destructive practice of style piracy is a factor would mean the practical elimination of it from our commercial life.—*Editor.*

General Wage Increase Held Impossible in NRA Report

"Under existing conditions, there is no factual or statistical basis for any general increase in Cotton Textile Code wage rates," states Leon Henderson, Division of Research and Planning, NRA, in the preliminary report on a study of wages arising from the strike settlement. He does, however, favor an equalization of wages in the higher brackets.

Conclusions of the report follow:

1. Increased costs cannot be passed along to consumer, except in part, and except at cost of lessened demand and fewer opportunities for employment, as shown by recent price behavior, and recent low levels of cotton consumption.
2. Margin available for payment of wages has been squeezed between falling finished goods prices and rising raw material prices, including the processing tax.
3. A further increase in costs cannot readily be absorbed by industry, for apparently even present costs have to be met to some extent by dissipation of working capital.

The report is the second to be made on issues raised in the strike settlement. The first took up the question of hours of operation and reached the conclusion that there was no justification for a decrease in the number of hours of operation and that normal demand would require 90 hours per week rather than 80.

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Goods Market Picks Up

The cotton goods market opened slow in June, discouraged by threatened strikes and higher wage demands. Shortly after, these depressing factors were eliminated, and, helped by low prices, sales picked up considerably. The improvement was so pronounced that by the middle of the month the market was more active than it had been for the previous three months. Sheeting prices jumped ½ to ⅝c., while broadcloths and print cloths, though less active, remained firm. Trading began to ease the latter half of June.

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Taxes, Freight and Wages Discussed by S. C. Mfrs.

The annual session of the Cotton Manufacturers' Association of South Carolina was held June 26, at Spartanburg, S. C. S. Marshall Beattie, president and treasurer, Piedmont Mfg. Co., was re-elected president of the association, beginning his third year in such capacity. A. F. McKissick, Greenville, S. C., and Wm. P. Jacobs, Clinton, S. C., were re-elected vice-president and secretary, respectively.

Among subjects discussed were tax rates, freight rates, and wage differentials. It was reported to the meeting that taxes in South Carolina are 40% higher than in New England; that freight rates, on an equivalent basis, are 35% higher than in New England; and that the net wage differential is $1.50 per person per week in favor of eastern mills.

Talks were made by T. M. Marchant, member of the Cotton Textile Code Authority; J. E. Sirrine, member of the South Carolina Textile Industrial Relations Board; Dr. W. C. Hamrick, Gaffney, S. C.; and T. Frank Watkins, attorney, Anderson, S. C.

The following were re-elected members of the permanent executive committee: E. A. Smythe, Balfour, N. C.; V. M. Montgomery and J. Choice Evins, Spartanburg, S. C.; W. S. Nicholson, Union, S. C.; W. E. Beattie, E. F. Woodside, J. E. Sirrine, A. F. McKissick, and T. M. Marchant, Greenville, S. C.

Newly elected members of the executive committee were: F. W. Symmes, Greenville, S. C.; W. P. Hamrick, Columbia, S. C.; Dr. W. C. Hamrick, Gaffney, S. C.; George M Wright, Great Falls, S. C.; James P. Gossett, Williamston, S. C.; W. S. Montgomery, Spartanburg, S. C.; J. Gordan Smith, Hogansville, Ga.

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Appoint Print Cloth Sub-Committee

George A. Sloan, president of the Cotton-Textile Institute, announced last month on behalf of the Cotton Textile Code Authority that a print cloth sub-committee has been appointed to consist of the following: W. D. Anderson, Macon, Ga.; Willard Baldwin, New York; B. H. Borden, New York; Alfred E. Colby, Boston; Wm. B. Cole, Rockingham, N. C.; Elroy Curtis, New York; F. C. Dumaine, Jr., Boston; R. H. I. Goddard, Providence, R. I.; J. P. Gossett, Williamston, S. C.; E. M. Johnston, Greenville, S. C.; Ellison McKissick, Greenville, S. C.; T. M. Marchant, Greenville, S. C.; G. H. Milliken, New York; W. S. Montgomery, Spartanburg, S. C.; J. K. Morrison, Shannon, Ga.; M. P. Orr, Anderson, S. C.; James Sinclair, Fall River, Mass.; Elliott Springs, Lancaster, S. C.; Robert Stevens, New York; Dr. W. C. Hamrick, Gaffney, S. C.

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Sharp Gains Under NRA

A 40% increase in employment and a 78% gain in payrolls featured the cotton textile industry during its first year of operation under the NRA. These achievements were cited by George A. Sloan, chairman of the Cotton Textile Code Authority, on June 27, the anniversary of the formal submission of the code at the now-famous "gold-fish bowl" hearing at Washington.

Mr. Sloan reported that the code had brought about:

1. An increase of 40% in the number of persons employed, to a total of 460,000 workers.
2. An increase in payrolls, in the first 10 months of the code, of $113,000,000 or 78%.
3. An increase of 67% in hourly wage rates.
4. A decrease of 26% in average working hours.
5. An increase in average weekly income of cotton mill workers, adjusted to changes in the cost of living in 1934, of 25% above 1933 and 6% above 1929.

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Yarn Market Not Bad

June turned out to be not such a bad month for yarns, considering the seasonal let-down to be expected and the fact that there was a period in the middle of the month when there was practically no activity. Prices firmed the last week of the month under the stimulation of better demand.

The code provision covering the registration of prices had hardly become effective when there were loud cries from certain directions. The complaint most frequently heard is that selling agents are inclined to take the lowest price listed as the market.

Anderson Says Codes Unfair to South

In an address before the Southern Garment Manufacturers' Association at Atlanta, Ga., W. D. Anderson, president of the American Cotton Manufacturers' Association, declared that the South is not getting a fair deal in wage differentials under the NRA codes, and is losing money because of irregular freight rates. Mr. Anderson said in part:

"Calculated on the basis of the number of codes and not on the number of people employed in the industries represented by these codes, a differential of 15.1% is the computed average between the North and South. . . . I am told that a careful examination and analysis of the situation leads to the conclusion that a wide differential for the South ranging from 18 to 32% below that of the North would be in order and is justified by the facts and conditions."

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Raw Cotton Study Authorized by Foundation

Some of the funds of the Textile Foundation have been earmarked for aiding research on methods of improving the quality of raw cotton. It is generally recognized that one of the principal causes of poor quality is that there are so many varieties grown in each section that cotton is mongrelized. Consequently, part of the funds will be used this year to help finance comprehensive regional varietal trials of a number of the more or less standard varieties so that data can be gathered.

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Spindles Slow Up a Bit

Statistics of particular interest to cotton manufacturers, showing May operations and the raw materials situation, were:

Spindle activity .....98.2% capacity, or 7,279,092,293 spindle hours.
Cotton consumed .....519,765 bales.
Cotton imported for consumption 15,052 bales.
Cotton exported (excluding linters) .....284,764 bales.

April figures for comparison:
Spindle activity .....104.5% capacity, or 7,260,010,234 spindle hours.
Cotton consumed .....512,703 bales
Cotton imported for consumption 12,269 bales.
Cotton exported (excluding linters) .....386,594 bales.

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Raw Cotton News

Application blanks for identification tags for cotton ginned prior to June 1, 1934, are now available. This cotton, approximately 8,000,000 bales, is exempt from the tax provisions of the Bankhead Cotton Control Act.

Over 318,000 rental payment checks, totaling $11,836,344.59, had been mailed to cotton farmers by the Agricultural Adjustment Administration, as of June 7. These checks are part of $100,000,000 which will be sent as rental payments for approximately 15,000,000 acres taken out of production.

Harry L. Hopkins, Federal Relief Administrator, confirmed the report that a minimum of 250,000 bales of cotton soon will be purchased for relief work.

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Cotton Industry Notes

Dollar sales of cotton goods during National Cotton Week in 1934 showed average gains of 20% over 1933, according to an estimate prepared by the Cotton-Textile Institute. A record number of around 30,000 stores participated this year.

The Alabama Cotton Manufacturers' Association has started a campaign to check up on reports that a number of mills are evading payment of the processing tax. Officials of the Internal Revenue Department have discounted the reports which have been circulating.

J. B. Frierson, of the Dixie Mercerizing Co., Chattanooga, Tenn., was elected president of the Mercerizers Association of America, at a recent meeting. James L. Rankin, of the Ewing Thomas Corp., Chester, Pa., was elected vice-president, and Clarence L. Meyers, of Clarence L. Meyers, Inc., Philadelphia, treasurer.

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Cotton Mill News

Walton Cotton Mill Co., Monroe, Ga., has completed a two-story addition, 80x 90 ft., to be used for storing cloth. Warfield & Keeble, Nashville, Tenn., engineers; A. K. Adams Co., Atlanta, Ga., contractors.

Pacific Mills stockholders will meet at Boston, Mass., Aug. 7 to vote on proposed changes in the capital structure, etc. Directors have recommended a reduction in par value of shares from $100 to $50 a share.

Royal Mfg. Co., Rahway, N. J., has decided to locate a plant at West Point, Miss., and is said to be considering establishment of another unit at Laurel, Miss. Rough cloths will be manufactured from short staple cotton.

Amsterdam (N. Y.) Textile Co. suffered damage by fire.

Faytex Mills, Inc., Fayetteville, N. C., have approved plans for expansion and improvements, with installation of new spindles and auxiliary equipment.

United Mills Co. property, Hickory, N. C., formerly used for yarn production, has been taken over by new interests, headed by F. C. Todd, Gastonia, N. C., and associates. The mill has recently been occupied under temporary lease by the United States Forest Service. A new company is being formed by the acquiring interests, and plant will be remodeled and new equipment installed for cotton goods manufacture. The program is reported to cost over $50,000.

Wovencraft, Inc., whose plant at Marlboro, N. H., was completely destroyed by fire, has bought the No. 4 Mill at Clinton, Mass., formerly occupied by Bigelow-Sanford Carpet Co., and are now installing 37 looms and accessory machinery for the manufacture of cotton and rayon woven labels.

Lincolnton (N. C.) Thread Spinners, Inc., idle for some time, has been placed in hands of J. A. Abernathy, Jr., temporary receiver.

Neuse (N. C.) Mfg. Co. suffered a fire which destroyed the waste house and damaged the mill office.

Rocky Mount (N. C.) Mills have installed several high-speed winders, have converted 16,000 spindles to long draft, have replaced 24 old frames with an equal number of new and have replaced one-half of their twisters with new large package twisters. The mill village has been renovated and a new warehouse built. During the last year $125,000 was spent on improvements.

Elastic Fabrics, Inc., Providence, R. I., have been organized with capital of $50,000, by Marshall Swan and Ernest A. Jenckes, 28 Fosdyke Street, Providence, to operate a local mill.

Warren (R. I.) Mfg. Co.'s plant has been acquired by the **Berkshire Fine Spinning Associates.** The Warren plant, long idle, manufactured cotton goods.

Clover (S. C.) Mills Co. has been placed in the hands of a receiver, J. W. Quinn, of Clover, S. C.

Olympia Mills, Columbia, S. C., has awarded C. M. Guest & Son, Anderson, S. C., contract to build addition costing approximately $11,500. Lockwood-Greene Engineers, Spartanburg, S. C., are the engineers. Three Barber-Colman spoolers and three Barber-Colman warpers are being installed.

Winnsboro (S. C.) Mills has installed four Barber-Colman warpers and three Barber-Colman spoolers; the Hogansville (Ga.) plant has installed two Barber-Colman spoolers.

Washington Mills Co., Fries, Va., is carrying out an expansion program, with installation of new equipment. A new heating system is also being installed.

Virginia State Penitentiary, Richmond, Va., has recently closed bids for a quantity of cotton mill machinery for installation at local institution.

TEXTILE WORLD'S

Wool Digest

THE report of the committee on control of production, of the National Association of Wool Manufacturers, came as a distinct disappointment to us. As we stated in this column last month, we had permitted ourself to become more optimistic over the outlook for cooperative effort in the woolen and worsted division of the industry. Now we feel quite let down.

The negative attitude still predominates. The majority does not favor a two weeks' shut-down; it does not favor a single 40-hour shift. It is dissatisfied with things as they are—but can't seem to get started to correct them.

The committee itself finds it necessary to state that it "does not favor any control of production through limitation of productive machinery which would stifle the initiative of the individual."

That sort of statement will arouse applause from certain groups, but it won't do much of anything else. So long as that attitude prevails, it's good-bye production control!—*Editor.*

Strike Called Off, Relations Board Formed

As a result of a conference in Washington, on June 29, with Division Administrator R. L. Houston, representatives of the United Textile Workers and of the Wool Code Authority agreed that the strike threatened for July 2 should be called off and that plans for the formation of an industrial relations board be expedited. The board, which also covers the silk industry, is composed of one representative of employers and one representative of employees from both the silk and wool branches. Robert W. Bruere, who is also chairman of the Cotton Textile Industrial Relations Board, serves as an impartial chairman, making a board of five. Examination of some of the U. T. W. charges has already started.

The calling off of the strike surprised no one, as it was generally recognized that the U. T. W. was merely doing a little shadow-boxing. Mill activity has been so low that a strike would have been ineffective. It is regarded as a favorable factor, however, that the new industrial relations board will have a chance to get a running start on the problems that will become prominent when business improves.

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Production-Control Still Unsolved

Response to last month's questionnaire on two-week shutdown and/or machinery limitation, showed that the majority of the industry did not favor the shutdown, nor the single 40-hr. shift. A substantial number evidenced desire for some form of production control despite the fact that the direct means to this end was turned down. Suggestion has been made of two 30-hr. shifts instead of two 40-hr. shifts, but as that would probably entail a raise in hourly wages, it is not agreeable to many. Doubtless the industry will have to originate some practicable plan, or have one forced upon it.

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Cotton-Wool Jurisdiction

The cotton textile and wool textile code authorities are endeavoring to define jurisdiction for their codes. The wool group believes that a mill using any wool should come under the wool code because of its higher scale of wages, but that has been modified by some to 20% by weight of wool in a fabric as the point at which wool code jurisdiction would step in. The cotton group believes that the fiber of greatest weight in a fabric should settle its classification, although they admitted that blankets 25% or more of wool should be governed by the wool code. Appeal has been made to N.R.A. for a ruling and a Washington conference held.

•

Progress on Promotion

The fact that both raw wool and wool textile interests are getting together on plans for wool promotion gives better hope than heretofore for success of the movement. Further committee meetings have been held. Plans are understood to be crystallizing, but the details of financing the promotion are unsettled.

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Fall Prices Unsettled

June passed with light scattered business in men's wear and dress goods circles. Buyers were said to be holding back in order to maintain a favorable position at semi-annual inventory as of June 30. Some sampling for fall is under way but expectation is that July will start slowly with more active developments toward the end of the month.

There is uncertainty on prices, with buyers talking about ⅜-blood fancy worsteds at $1.45 for 13 oz. and cassimeres at $1.00 to $1.10, which sellers of course regard as ridiculously low. There are still bullish influences on the horizon and sellers will be cautious about tying up too much production at sacrifice figures.

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British Wool Market Acts Bewildered

The opening of London wool sales on July 3 showed prices ranging anywhere from 10 to 25% below those registered in May and about 75% of the offerings were withdrawn. Some of the lack of trading has been attributed to the fact that German buyers were not allowed to be present, but more generally it is held that sellers believe that the price situation has gotten out of control in its downward course and that there is no use dumping wool at sacrifice prices when a reaction is in the offing.

The Bradford top market continues dull with top-makers not making much effort to push sales until raw wool takes a definite trend.

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Worsted Yarns Getting Settled

The most hopeful feature of the worsted yarn market is that prices have been changing from a nominal to a trading basis. This has meant a downward revision of quotations, but it might be called a "revision in name only." Evidence of some interest on the part of buyers has brought about an inclination to get prices on a realistic basis so that volume business will not be held up if it develops.

A number of mills and selling agents are dissatisfied with the open price reporting plan and are seeking its abolition. They state that buyers secure information on prices and use it to pound the market down.

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Wool Prices Carefully Controlled in Dull Market

Manufacturers and topmakers bought little wool during the month of June, and the line of prices set by the Wool & Mohair Advisory Committee covering territory, Texas and similar wools, remained unchanged. The maintenance of prices has in the main been advantageous to manufacturers and goods distributors, and it is now understood that any revision of the price list is unlikely until manufacturers and topmakers can

state definitely the wool basis on which they can sell their products. The price of wools apparently will be determined by what the mills can afford to pay. Meanwhile, liquidation of over-production continues without any serious disturbance to contract prices, something which could not have happened, it is said, had there been an uneasy and see-saw market for the raw material.

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The Top Situation

The New York Wool Top Exchange discontinued issuance of a daily Boston spot price for wool tops on June 30, and since July 10 has issued daily price for offerings of spot certificated tops. There has for some time been a disparity between Boston spots and near month futures, as for example the overall range for June and July contracts during June was 85.5c. to 90.5c., while the range on Boston spots was 103c. to 105.5c. Cooperation between the Boston and New York interests still remains a problem. The top market in general was barely steady, and business was light.

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Fall Clothing Trade

Despite the evidences of uncertainty on the part of clothiers which are currently reported on the men's wear fabric market, we have a report issued by Dun & Bradstreet dated June 16, which states "outlook for fall clothing sales best in seven years." Perhaps what mill agents have heard is just buyers' tactics after all.

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Activity of Industry

Current statistics on wool consumption and mill activity follow, the activity percentage being based on single 40 hour shift, 5½ days per week:

Wool consumed:	April	May
Total clean equiv. (excluding carpet)	10,354,000	9,483,000
Carpet wool (grease)	7,377,000	7,355,000
Activity machinery:		
Looms (50" and wider)	69.4%	70.9%
Carpet looms	49.5%	52.5%
Combs	56.7%	57.9%
Worsted spindles	48.5%	49.8%
Woolen spindles	92.6%	87.7%

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Suggests Changes in Rules

Modifications of the rules of practice and merchandising for the piece goods selling division, are being sought, particularly by the Industrial Council of Cloak, Suit and Skirt Manufacturers and by the Merchants Ladies Garment Association, which bodies criticize the discounts and delivery charges, as well as opposing the price registration provision.

The National Association of Woolen Merchants ask for a longer period for examination of goods delivered to them.

Washington hearing is set for July 17 on bringing yarn jobbers under the rules of practice for the sales yarn group and then setting uniform terms of 1% 10 days, net 60, on both knitting and weaving yarns.

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Wool Industry Notes

M. A. Campbell Co., Boston, has appointed David J. James, 100 Chestnut St., Philadelphia, to handle its line of mohair tops, noils and wastes in his territory.

Lewis H. Esler, sales agent for worsted, woolen and mohair yarns, is now located at 3701 North Broad St., Philadelphia. Richard Pollock, Jr., is associated with him

According to a survey by the National Retail Dry Goods Association of its 4,500 members, three out of five women will buy black coats or suits this fall. Last year black was put at 50% of coat and suit sales, this year it should rise to 60%. Brown is expected to run second with 20% of the business, green next at 8%, rust and wine at 7%, blue and others at 5%. In wool dresses colors are forecast as follows: Brown tones, 30%; black, 20%; green, 20%; rust and red, 20%; blue, 10%.

Alex Walker, for some time prominent in the wool goods industry as head of Strong, Hewat & Co., has reentered business as president of the newly organized Crown Fastener Co., makers of slide fasteners.

Current plans call for issuance of the quarterly wool stock report on or about July 16.

Bigelow-Sanford Carpet Co., has been licensed to manufacture and sell patent back carpets under the Chance patent through an agreement with Collins & Aikman Corp. The patent covers the binding or seaming operation of processed-back fabrics, eliminating sewing and hand binding and permits designs to be made with plain carpets. Collins & Aikman will shortly discontinue manufacturing under the Chance patents. The new line was shown under name of Bigelow Lokweave Broadloom at the opening on July 9. Four qualities are offered in 27 colors, and a line of 19 ready-made designs is available. The company's other lines in new patterns were also shown at the opening.

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Wool Mill News

Long Beach (Calif.) Woolen Mills Co. has been organized and has taken over the local plant of **Pioneer-Pacific Woolen Mills Co.** This mill represents an original investment of $985,000, occupies 4½ acres, and employs 175 persons. Officers of the new company include Dr. Henry V. Wall, president and chairman of the board; Lynn W. Ballard, secretary-treasurer; Cliff Wall, first vice-president; L. Roy Myers, second vice-president.

Brunswick Worsted Mills, Moosup, Conn., are now occupying the former local mill of the American Woolen Co., recently secured for a new plant unit. Company is removing equipment from former mill at Central Falls, R. I., and will concentrate production in future at the Moosup plant.

Russell Mfg. Corp., Pittsfield, Mass., as previously noted, was taken over by the Berkshire County Savings Bank as mortgagee. The latter has recently sold all the machinery in the mill, with the exception of the power plant, to Jacob Ziskind, Fall River machinery dealer.

Norad Mill, Braytonville, Mass., idle for a number of years, is being improved, and will be placed in service for production of woolens. Facilities will be provided for about 125 operatives. John Lindsey will be superintendent.

Farr Alpaca Co., Holyoke, Mass., reports for fiscal year ended May 31, 1934, a net loss of $506,188, compared with a net loss of $1,016,787 a year ago. Current assets amounted to $5,930,722, against current liabilities of $187,293.

Plymouth (Mich.) Felt Products Co. has plans under way for new one-story mill, about 20x135 ft., reported to cost about $30,000, with equipment. I. M. Lewis, Inc., Ford Building, Detroit, Mich., is architect.

Star Woolen Co., Cohoes, N. Y., is making extensive improvements to its property.

Felters Co., Johnson City, N. Y., has awarded general contract to Crane Service, Inc., Binghamton, N. Y., for new two-story addition, recently referred to in these columns.

Empire Woolen Mills has been established at 761 South 4th St., Philadelphia, Pa., under the management of Herman Brill and Celia Brill.

Stillwater Worsted Mills, Harrisville, R. I., returned to 40-hour week basis on July 9 after a three-month trial of the 36-hour week.

Virginia Woolen Co., Winchester, Va., has awarded contract for brick, concrete and steel addition. The building will cost approximately $70,000; floor space will be increased to 140,000 sq.ft.; and 100 additional employees will be added.

Lindsay, Ontario, Canada. Property on the Scugog River has been purchased by an Australian company which set up a wool-top making plant.

Hanson Woolen Mills, Hull, Que., is building a small extension to its main building and will install two additional sets of 60-inch woolen cards and two mules.

TEXTILE WORLD'S

Rayon Digest

L. A. YERKES made a strong point during his testimony at the Federal Trade Commission hearings when he stated that issuance of price lists by the various producers on the same day was necessary because customers demanded that they receive the new prices at the same time as their competitors.

This fact has been well known by the industry for years. It became particularly obvious recently when there was an unprecedented lag between the first price-change made by one firm and the adjustment of other quotations to it. The market, in the interim, went stagnant; consumers showed very clearly that they would not buy under those circumstances.

Practically simultaneous pricing, which might have the appearance of price-fixing, seems in this case to be assent to insistence of customers.—*Editor.*

Rayon's Dark Days Relived at Probe

Misbranding of yarn, widespread manufacture of inferior knitted fabric and excessive surplus stocks in producers' hands had so jeopardized the rayon market during the winter of 1931 and 1932 that action was imperative if the industry was to survive. It was this critical situation which brought the company heads together at meetings, according to testimony offered by leading producers at the continued hearing of the Federal Trade Commission which were held in New York the second half of June. The hearings followed charges that the yarn industry had engaged in price-fixing and monopolistic practices. The substance of testimony by Leonard A. Yerkes, president of DuPont Rayon Co., S. R. Fuller, Jr., president of North American Rayon Corp., C. M. Carr, vice-president of American Enka Corp., Hiram S. Rivitz, president of Industrial Rayon Corp., and others was that, while producers discussed industry problems at meetings, all acted independently with regard to curtailment or prices.

Referring to the Union Club meeting of Oct. 21, 1931, Mr. Yerkes testified he could not recall that Samuel A. Salvage, president of the Viscose Co. of America, who was among those present, had said anything about prices. Explaining that some producers seemed to have been deliberately manufacturing obsolete yarn to sell cheap, Mr. Yerkes said this aroused consumer resentment which was a serious matter for his firm, as the DuPont Co. sold 40% of its yarn to the circular knit underwear trade. He gave a detailed picture of DuPont's curtailment policy, asserting that whenever the stocks reached six or seven weeks' supply based on current sales, curtailment began automatically. He said the company curtailed periodically for some time prior to the date when the alleged monopolistic practices began. Incidentically he was later supported on this point by Mr. Fuller who cited statistics to show that the then Glanzstoff company had applied the curtailment policy seasonally long before the alleged offenses were committed, implying that the meetings of producers had not caused any change in this regard.

Mr. Carr testified that he did not remember the Union Club meeting but that he attended other meetings, which meetings however did not represent the entire industry. The chief topics of these conferences he said probably were the poor condition of the industry—sales had declined 40%—and the danger of overproduction of yarn. He declared that his firm acted independently on curtailment, shaping production as its business might warrant. He regarded the rayon industry as always competitive and said his firm did not publish price lists with all quotations of its larger competitors but took these competitors' prices as a goal and tried to get its own quotations as close to them as possible.

Hiram S. Rivitz, president of Industrial Rayon Corp., testified June 26 and 27, giving a full story of the producers' meeting at the Union League Club, New York, Oct. 21, 1931, which he said he arranged at request of Mr. Salvage. Loading of cloth and stretching had reduced the knitted rayon fabric business to a "racket," and the producers discussed possible solutions to this problem, he stated. Curtailment was considered, but Mr. Rivitz denied he agreed to curtail, also denying that he entered the knit cloth business to punish firms that sold for low prices. The following figures were submitted showing Industrial's output in relation to capacity: November, 1931, 79.9%; December 80.4%; January, 1932, 79.1%; February 75.7%; March 74.7%; April 68.4%; May 72.8%; June 74.6%; July 23.3%; August 24.9%; September 100%.

At the end of the June 27 session the hearings adjourned for the summer and it was intimated that they might not be resumed later.

•

Authority Approved

The Code Authority for the Rayon Industry assumed official status on June 18 with the announcement by H. O. King, NRA Division Administrator, that the personnel of the authority had been approved. It was also stated that John M. Hancock, of Lehman Bros., New York, and an executive officer of the NRA, had been appointed Administration member of the Rayon Code Authority. It is interesting to note that practically every rayon manufacturing firm is represented. The list follows:

C. A. Huttinger, Acme Rayon Corp., Cleveland, O.; C. Wolff, 3rd, American Bemberg Corp., New York; C. McD. Carr, American Enka Corp., New York; S. R. Fuller, Jr., North American Rayon Corp., New York,; G. T. Loveridge, Belamose Corp., Rocky Hill, Conn.; J. A. Larkin, Celanese Corp. of America, New York; Leon H. Ryan, Delaware Rayon Co., New Castle, Del.; L. A. Yerkes, Du Pont Rayon Co., New York; M. L. Praissman, Furness Corp., Gloucester City, N. J.; W. F. Guinan, Hampton Co., Easthampton, Mass.; H. S. Rivitz, Industrial Rayon Corp., Cleveland, O.; B. F. Proud, New Bedford (Mass) Rayon Co.; H. D. Kernan, Skenandoa Rayon Corp., New York; P. W. Wilcox, Tennessee Eastman Corp., Kingsport, Tenn.; Rufus W. Scott, Tubize Chatillon Corp., New York; S. A. Salvage, The Viscose Co., New York; G. R. Lockhart, Woonsocket (R. I.) Rayon Co.

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Van Vliet Accepts Underwear Post

E. R. Van Vliet, vice-president and treasurer of Tubize Chatillon Corp., announced July 6, that he had resigned as vice-president of the Rayon Circular Knit Fabrics Institute, and had accepted the post of member of the Underwear Code Authority, representing the tubular knitted fabric group on the Authority. Mr. Van Vliet said his company would retain its membership in the Knit Fabrics Institute.

He pointed out that, while he had opposed inclusion of the tubular division in the underwear code and favored a separate code, he had accepted as final the NRA ruling which denied the tubular division a separate code, and therefore would serve with the Underwear Code Authority on behalf of his own group.

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Peddlers Elect

The election of J. C. Scott of the American Enka Corp., as president of the Rayon and Acetate Peddlers' Association of New England, succeeding Morris Phinney, of North American Rayon Corp., was a feature of the association's annual field day which was held at the Warwick Country Club, Providence, R. I., last month. Other officers elected were Dana H. Gillingham, of New Bedford Rayon Co., as vice-president, and Bartlett Guild, of Celanese Corp. of America as secretary-treasurer. Mr. Gillingham took golf honors at the tourney, winning the Brunet trophy with a score of 79. A handicap of 15 gave him a net of 64. Ray W. Greene of American Bemberg Corp. was a runner-up with 82 gross, handicap 14, net 68. The day closed with a dinner at which Edward E. Connor was toastmaster.

Interest in Staple Fiber Rising Abroad

Staple fiber or cut-rayon is getting renewed attention in Germany and Japan, according to correspondence between Joseph D. Holmes, New York, and the Department of State. Investigation through the consular service in Japan discloses that some 10 or 12 companies are working commercially or experimentally on staple fiber, particularly as a wool substitute. Among those listed are the following:

Nippon Artificial Wool Co., Osaka Building, Tokyo; now constructing plant at Toyohashi, production 10 tons daily by October 1934.

Nippon Woolen Textile Co., 691 Nishiide-machi, Kobe; began operations summer of 1933.

Dai-Nippon Spinning Co., Amagasaki; to make staple fiber at its Ogaki plant, product available July 1934.

Nitto Spinning Co., Sugitsuma-mura; began staple fiber production in its Fukushima plant February, 1934.

Kinka Rayon Co., Yamaguchi Bldg., Osaka; building staple rayon plant at Ujina to be in production early in 1935.

Shinko Rayon Co., Osaka; building plant for daily production of 10 tons staple fiber.

In Germany experimentation continues on hollow-filament fiber, fiber with bubbles in it, ribbon-like fiber, etc., for spinning on wool or cotton machinery.

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Fashion Spurs 200 Den. Demand

While yarn demand suffered its seasonal let-up during June, moderate activity and a gradually firming tone was reported by leading producers. One interesting feature of recent weeks was the sharp rise in the call for 200 denier. This development is a direct reflection of the fashion trend toward heavier fabrics for next winter and it is expected to keep the 200s moving steadily for some weeks. This yarn is being used by weavers, as filling on crepes instead of 150 denier.

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"Wooly" Rayons Active

Wool-like rayon fabrics made of spun yarn promise to be important in fall, according to statements of gray cloth factors this month. The rough-surface rayons which have either twill or plain weave and distinctly "wooly" in appearance are exciting attention for manufacture of fall apparel lines. Among the new spun rayon fabrics, those which are mixed with cotton are enjoying active movement at low prices and further demand at this end is looked for.

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Labor Trouble Shuts Tubize Va. Plant

The protracted labor controversy at the Hopewell, Va., plant of the Tubize Chatillon Corp., reached its climax June 29, when 200 employees stopped work, necessitating the closing of the plant. Raymond S. Burrows, plant manager, denied that a strike existed; he declared that "a lot of outside people invaded the plant and bodily carried out enough of our employees to force us to stop operations." The closing of the plant rendered 2,600 persons idle.

The development followed claims by the United Textile Workers that the company had discharged many workers for union activity.

Company officials said they had no idea when yarn production at the plant would be resumed.

The Federal Department of Labor has been conducting an investigation of the case.

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Fabric Tone Firmer

Market tone in some branches of the rayon weaving division has strengthened considerably as result of the enactment of the Cotton Textile Code Authority's curtailment program which includes these weavers. Rayon manufacturers have reported to the National Rayon Weavers Association that one of the biggest benefits of code operation has been to give them more flexibility in production enabling them to make output conform more fully to seasonal variations.

•

The Shine Comes Back

The problem of protecting the consumer against unsatisfactory rayon underwear, which everyone had believed to have been solved, has bobbed up again; this time however, it is in the woven fabric division. Yarn producers point out that some converters use temporary delustering substances on woven underwear fabrics, especially taffetas, with the result that these finishes wash out leaving the once-dull fabric with an objectionable luster. Two alternative solutions are suggested: Either underwear manufacturers should be educated to see the unsoundness of this practice, or the price of pigment yarn should be brought closer to that of bright yarn.

•

Rayon Industry Briefs

Uncrushability and softness of face are chief characteristics of fabrics made from two new yarns developed by the North American Rayon Corp. The new yarn numbers, 60/60 and 100/100 are regarded as especially suitable for summery fabrics. This one-demier per filament yarn is said to be the finest now marketed in this country in the ultra fine filament yarns.

Prospects of a general adoption of the term "acetate rayon" as substitute for "acetate" in promoting this type of yarn, were seen in the announcement made June 24, by John A. Spooner, merchandise manager of the Viscose Co. of America, that hereafter his firm would link the two words in all promotion.

Black combined with bright shades, purplish tones and greens are highlighted for winter in synthetic yarn fabrics shown in the new Paris displays, according to the Paris office of the DuPont Rayon Co.

Yarns, fabrics and a satin wedding-gown were among the features of a Crown Rayon display staged by the Viscose Co. of America at the Home Economics convention at the Pennsylvania Hotel, New York, during the week of June 25. Photographs illustrating steps in the process by which Crown fabrics are tested, were shown.

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Rayon Mill News

American Enka Corp., Enka, N. C., is valued for taxation in North Carolina for 1934 at $3,384,505, an increase over last year of $322,401. Improvements to April 1, 1934, total $282,328, consisting of $199,030 for machinery and $83,299 for buildings.

Canadian Celanese, Ltd., Drummondville, Que., has purchased the pulp and paper mill located at Chandler, Gaspe, Que. The paper mill, which has been closed for the last two years, cost $1,500,000 in 1915, but was purchased for $90,000. The new owners will produce sulphite pulp for the manufacture of synthetic yarns.

Courtaulds, Ltd., England, have acquired the plant and machinery of Arrow Mill Co., Ltd., cotton spinners, at Castleton, Rochdale, England. The mill is equipped with 133,000 mule and 10,000 ring spindles. Purpose of the acquisition is said to be demonstration of production under commercial conditions of staple rayon yarn made from Fibro. This is described as possessing 1½-inch staple and it has been spun experimentally heretofore in a small plant.

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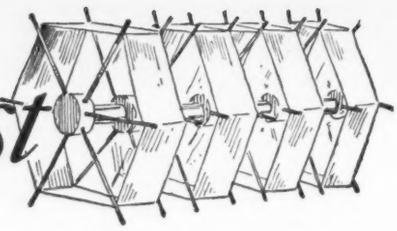
TEXTILE WORLD'S

Silk Digest



WE always hesitate to say that any company is the largest, or any man's services the longest, because usually such a statement immediately draws out other contestants for the honor. However, since Ramsay Peugnet has been referred to so many times as the dean of textile trade association executives, we presume his connection with the Silk Association of America and its successor, the National Federation of Textiles, constitutes a record.

Whether it does or not, however, it represents a service of which he may well be proud. For a quarter of a century he has been in the center of a great industry. He has helped the association grow from a small organization with a staff of four to one manned by 124 employees.

As Mr. Peugnet starts on a well-deserved indefinite leave of absence, he takes with him the esteem and affection of the entire industry.—*Editor.*

Federation Announces Executive Changes

Continuing its program of reorganization to meet the needs of the new era, the National Federation of Textiles, Inc., has announced a number of changes, some of which have already become effective. Among these was an executive rearrangement by which Luther K. Bell, of New York, N. Y., was appointed treasurer of the Federation and of the Silk Textile Code Authority, succeeding Ramsay Peugnet who was granted an indefinite leave of absence after a quarter-century of service to the silk industry. Commenting on the departure of Mr. Peugnet, Paul C. Debry, president of the Federation, paid warm tribute to this leader's notable record of constructive accomplishment since he became affiliated with the old Silk Association in 1909, adding that "the industry will always be conscious of their obligation to Mr. Peugnet." The development of the Silk Association's Arbitration Bureau and the organization of the Design Registration Bureau were among Mr. Peugnet's most significant contributions.

Luther K. Bell

Ramsay Peugnet

Wm. H. Turner

Mr. Bell was for nine years secretary and general manager of the Aaeronautical Chamber of Commerce; he also was affiliated with the National Better Business Bureau and its New York unit, and more recently was assistant director of the N.R.A.'s Bureau of Complaints in New York City. He assumed his Federation post on June 15.

Other changes announced by Peter Van Horn, vice-president of the Federation, were: Appointment of Howard Heydon, consultant of the Compliance Division of the N.R.A. at Washington, as Director of Enforcement for the silk code; appointment of Wm. H. Turner, textile economist, formerly with the John Price Jones Corp., as director of the Federation's Bureau of Planning and Research; and the appointment of a finance committee for the Federation, comprising: John P. Maguire, president of Textile Banking Co., Inc.; E. F. Addiss, president of Meinhard, Greeff & Co., Inc. and Walter Neale, treasurer of Duplan Silk Corp.

Mr. Turner, new director of the Bureau of Planning and Research, brings to that post a broad knowledge of market research and statistical analysis covering many fields. He was formerly with the McGraw-Hill Publishing Co., later becoming economic editor of the Encyclopedia Britannica, Inc. Mr. Heydon, enforcement officer, also has been made vice-chairman of the code authority.

The Federation plans to move its headquarters from 468 Fourth Ave. to a location that will be more convenient to the silk center of New York. Larger quarters to permit more compact arrangement of offices are being sought but this change probably will not be made until fall.

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Velvet Group Wins Code Extension

Lengthy arguments pro and con on the question of whether the velvet industry should be granted an extension of its expiring code of fair competition, or whether it should be placed under the Silk Textile Code, were heard before Deputy Administrator F. S. Blanchard, at Washington, June 19. On July 5 it was announced that the velvet code had been extended for the duration of the NRA.

•

Silk Imports Shrink

Raw silk activity in June showed a shading off compared with May, although silk in transit from Japan rose from 33,200 bales in May to 38,600 in June.

Key statistics in bales as announced by the National Federation of Textiles, Inc., follow:

	April	May	June
Import received during month	35,647	38,717	31,057
In storage at end of month	61,083	61,060	59,048
Approximate deliveries to mills	37,392	38,740	33,069

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Raw Silk Suffers New Relapse

Raw silk weakened decisively during the month of June, and July opened with little prospect of any betterment. Indeed, further recessions were predicted, in view of the projected hosiery curtailment which would naturally reduce buying. The price of Crack Double Extra 13/15 white 78%, which was $1.32½ May 27, dropped to $1.17½ on June 27. In the intervening period levels were even lower, with reports that certain 13/15s could be bought at $1.05.

Hosiery mills have been practically the only buyers and orders from this division were limited to fill-ins for immediate delivery. Importers were hopeful that weavers would begin placing business soon, but the movement of fall satins has been only moderate and mills hesitated to cover on raw material until they could see more clearly regarding fall volume.

Most raw silk buying has been featured by much bargaining. Importers said they could sell only at buyers' prices, and some are showing resistance to this pressure. Yokohama continued fairly firm, which strength was ascribed to the stabilizing influence of the Japanese banks.

Importers Organize

M. A. Salembier, of Salembier & Villate, Inc., New York, was elected president of the Raw Silk Importers, Inc., a newly formed affiliate of the National Federation of Textiles, Inc., when that body held its organization meeting June 26, at the Federation offices in New York. Details of incorporation were completed and by-laws approved. Other officers elected are: N. Egawa, of Morimura, Arai & Co., vice-president; Stefano Berizzi, Berizzi Bros., Inc., secretary, and B. H. A. Hofmann, Morimura Arai Co., Inc., treasurer.

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Market Moves Silkward

While the trend toward all-silk fabrics continued a distinctive feature of the broadsilk market during recent weeks, it could not be said that this had caused any real turn away from the silk-and-synthetic mixtures which represent the bulk of higher-end lines. Fabric merchandisers were inclined to believe that the price of pure dyes would automatically limit that market, and this found confirmation in the active demand for silk-and-acetates which sold at 25 to 50c. less than the pure dyes. It was accepted that all-silks are due for a good fall season.

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Paterson Buries Axe; Joins N. Y. Group

A plan by which the Silk Manufacturers Association, representing the broadsilk industry of the Paterson, N. J., district, will eventually be discontinued and its membership incorporated in the Broad Goods Weavers Association, a subdivision of the National Federation of Textiles, Inc., was submitted to the Paterson organization's membership totalling 440 manufacturers for action on June 29, and the proposal was unanimously approved.

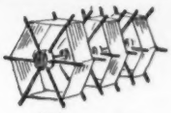
The merger idea was developed by a committee of the Silk Manufacturers Association, headed by Benjamin Kaminsky, president.

The action is illustrative of the silk industry's pronounced trend toward coordination. It also marks the termination of an old rivalry between the New York and New Jersey divisions.

Rats in Silk Pants

Rats wearing silk pants are being sacrificed in college laboratories. The experiments of Dr. Pauline Berry Mack, Chemical Director of Pennsylvania State College, in which rodents died after wearing nether garments of lead-weighted silk, were recited the other day before the Home Economics Association. The Technical Department of the National Federation of Textiles, Inc., immortalized the tragedy, if not the conclusions, in a poem which ended:

"But here's the point, and mark it well,
While Pauline rails and rants.
It's humans, not the little rats,
Who have to wear the pants."



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Shutdown Cuts Fabric Output 22%

Broadsilk production in May was 22% below April as a result of the recent May 14-21 shutdown, it was announced last month by Peter Van Horn, Chairman of the Silk Textile Code Authority. The following index figures for stock-carrying mills, representing 49,333 looms, in the 11 day operating period, May 16 to 31:

	Period Totals			% Change	
	This Period	Last Period	Year Ago	Last Period	Year Ago
Production.	115.0	147.6	249.0	—22.1	—53.8
Net sales-shipments.	176.6	177.2	271.3	— 0.3	—34.9
Undelivered Orders....	273.4	227.6	.....	+20.1	.....

The authority's index figures for the entire month of May as against April follow:

	Production	Sales-Shipments	End-of-Month Stock
April, 1934..	344.9	390.2	937.7
May, 1934..	269.7	357.7	890.3

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Silk Industry News

Charges that a Japanese textile company plans to "dump" huge stocks of all-spun silk cloth into the American market shortly have been laid before Washington authorities by the Textile Converters Association of America. It is stated that the Japanese cloth would wholesale at 65c. per yd., competing with American-made goods which cost 85c. to produce.

The Commodity Exchange, New York, has deferred action until Sept. 6 on the proposal to admit Italian and Chinese silks to futures trading on the same basis with Japanese silk. A general vote of membership probably will be taken.

A silk yarn for knitting, available in two numbers, rough and smooth, has been developed by the Belding-Heminway-Corticelli Co., it was announced June 28, by Raymond C. Kramer, president. The yarn was described as of unusual washability and good insulating properties.

The Philadelphia offices of Geo. B. Pfingst, Inc., hosiery tram silk yarns, have been moved from 308 Chestnut St., to the Drexel Building, 5th and Chestnut Sts.

Harte & Wyle, New York, are wholesaling, for general use, the oiled silk made by the General Electric Co., primarily for insulation, which has unusual qualities of durability.

Silk Mill News

H. T. Silk Co., Inc., Paterson, N. J., represented by E. E. Dickson, 152 Market St., Paterson, has been organized with capital of $125,000 to operate a local broad silk mill.

Wollner Fringe & Cord Co., 235-37 Preakness Ave., Paterson, N. J., is planning rebuilding of portion of mill, recently destroyed by fire, with loss estimated at close to $40,000.

Peerless Plush Mfg. Co., Paterson, N. J., in receivership, had its machinery and equipment sold at public auction June 27. The remaining real estate has been sold to the Clover Dyeing & Printing Works for $9,250.

Star Silk Mills, Union City, N. J., have been organized and have purchased the 18-loom plant formerly operated by Wardi Silks Mills. Michael A. Wardi and Theodore Zayat are the principals of the new concern, which will sell direct, specializing in French crepe and satin.

Cedar Cliff Silk Co., Massena, N. Y., has installed 21 new looms.

Allegheny Silk Co. will establish a plant in Altoona, Pa., to employ 192 workers. Building has been leased and installation of machinery and equipment started early in July.

Klots Throwing Co., which ceased to operate in February, 1932, has petitioned the U. S. Court at Scranton, Pa., for permission to reorganize.

Pen Argyl Silk Co., Pen Argyl, Pa., has taken over the plant at New Berlin, N. Y., formerly operated by the Rossville Silk Mills, idle for several years, and will occupy for branch plant. Building will be remodeled and improved, and equipment installed, including a 72-inch warper and 80 looms. James G. Brierly is superintendent.

Penn Weaving Mills have been organized in Philadelphia, Pa., by M. Schuman, 6th St. and Columbia Ave., to establish and operate a textile mill at 1648 North Randolph St.

Susquehanna Silk Mills, Sunbury, Pa., in equity receivership since 1932, has invoked the new National Corporate Reorganization Act.

Harris Bros. Silk Co., Paterson, N. J., has begun operation of its new ribbon factory in the Cliftondale Park section of Clifton Forge, Va. The plant will manufacture silk ribbons with 22 looms.

American Silk Mills, Orange, Va., has completed a two-story unit to the present factory, made possible by the raising of $25,000 from Orange business men.

TEXTILE WORLD'S

Knit Goods Digest

"EPOCH-MAKING" was the term employed by Dr. W. R. Emley, of the Bureau of Standards, to describe the two-day meeting held in New York last month on the proposed standardization of hosiery grading and labeling. Few will disagree with his opinion. For the first time, if the industry wisely accepts its committee's recommendations, the consumer will be able to judge the quality of her hosiery by other means than price, hitherto a commonly misleading indication. The result will be a minimizing of the danger of unfair price comparisons and consequently a deserved premium paid to the manufacturer of quality. —*Editor.*

Hosiery Mills Split on 35-Hour Plan

The long-awaited move by the Hosiery Code Authority to curtail production in that industry was taken June 21, when that body at a meeting in New York adopted a program calling for (1) a two-week-shutdown between July 1 and Sept. 1 in all hosiery mills, and (2) the adoption on July 16, of a 35 instead of the present 40-hour week for all productive operations including full-fashioned footing equipment operated on a two-shift basis. The Authority also plans (3) to raise minimum wages. The National Recovery Administration set July 9 for a public hearing at Washington on the Authority's proposals.

After presenting the 3-point program at the hearing, the Code Authority withdrew the proposals when it developed that the industry had no unanimity of opinion on the subjects.

The two week shutdown and the 35-hour week both excited widespread attention with interest centering on the latter. It is felt that conditions are too bad and surplus stocks too heavy to respond adequately to the moderate curtailment of the shutdown. A striking point is that some leading manufacturers feel the Authority did not go far enough in suggesting a 35-hour week. There is sentiment for a 30-hour week among some owners; however, John H. Brine, president of the National Association of Hosiery Manufacturers, said any further reduction in hours would be unfair to some firms.

In a supplementary letter issued to the industry June 25, the Code Authority made known that its program also projects wage increases up to 40%. The suggested new schedule gives full-fashioned leggers and footers, 45-gauge, $33.00 in Northern states and $29.75 in the Southern states. Following is the rate for the machine fixers in the seamless division: 220 needle and below $20.00 North, $18.00 South; 240 to 260 needle, $22.00 North, $19.75 South; 280 to 300 needle, $24.00 North, $21.50 South; and 320 to 340 needle $26.00 North, $23.50 South.

The curtailment program overshadowed the news that the Authority's request for permission to set up an emergency period and establish price minimums, on cost basis, had been approved by the NRA; it is understood this permission will not be exercised until the results of any curtailment program show themselves. It was announced that George F. Lang and Henry T. Bryan, Jr., had been appointed members of the Authority succeeding John H. Brine and Carl S. Kincaid, resigned.

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Truth About Hosiery

Hosiery buyers, including consumers, will shortly be provided with reliable means for recognizing the quality of full-fashioned hosiery they are buying, recent events indicate. A two-day meeting of the hosiery manufacturers' committee on construction standards, held with retail and consumer groups on June 14 and 15 in New York, showed conclusively that the establishment of standards and the corresponding stamping of hosiery are favored in principle by all concerned. The committee has drawn up its detailed recommendations for grading specifications, and it remains only for the report to be approved by a majority of the industry before it will become a part of the commercial standards to be put in effect by the Division of Trade Standards at Washington.

Grades are to be based largely on the number of courses in hosiery of various threads and gages. For example, a 5-thread 42-gage stocking of first quality must have at least 1,260 courses from picot to loose-heel course, based on a standard length of 30 in., and a two-thread 51-gage stocking must have 1,530 courses. In addition a full 14-in. needle bar is required and the welt must be a specified number of threads heavier than the body. Gage will be indicated by the number of flare narrowings. There are other specifications; but the entire report, until approved, is considered tentative.

A committee of manufacturers and buyers appointed to study this problem met on June 28 and voted in favor of "Grade A," "Grade B," and "Substandard." Their recommendations are being submitted to the National Retail Dry Goods Association for approval.

After construction standards have been adopted, it is proposed to develop standards for classifying hosiery on the basis of rings and similar defects, but it is felt that this work cannot properly be undertaken until Seem's grading cabinet (TEXTILE WORLD, December, 1933, page 68) has been studied longer in the light of practical experience and until the situation with respect to three-carrier knitting has become more settled.

•

Hosiery Labor

The labor outlook in the hosiery industry continued very muddled at the beginning of July and there was little prospect of immediate clarification. At the annual convention of the American Federation of Full-Fashioned Hosiery Workers, held in Reading, Pa., last month the question of calling a general strike in September was discussed at great length; as the convention concluded the status was that most factions favored calling a strike after a 60-day notice period expiring Aug. 31, if the union's demand for a 30-hour week with 33⅓% increase in pay was refused.

The call for the 33⅓% wage raise was viewed by the union as a negotiable issue. Commenting June 23 on the Code Authority's call order for a 35-hour week in the industry, Emil Rieve, who was reelected president of the federation at the convention, said the union would accept the 35-hour week only if granted a 14.9% wage raise to compensate for the lost earnings.

Other developments at the hosiery convention were: The plan for a $250,000 fund for organization of Southern mills was modified, and a smaller sum will be raised; a referendum among members on the 30-hour week proposal, was ordered.

The situation was further complicated with the news July 5 that the American Federation of Hosiery Workers had terminated as of Aug. 31, its agreement with the Full-Fashioned Hosiery Manufacturers of America. This action nullified steps already taken by the latter favoring renewal of the contract, and it was interpreted as preliminary to a new demand for a wage increase.

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How They Pile Up!

Hosiery stocks on hand in mills April 30 were greater than in any month for six months, according to figures issued in June by the Hosiery Code Authority. The figures were the first made public in a new Statistical Bulletin which the Authority will issue monthly, and represent reports from 567

companies, operating 683 mills. Key statistics in dozen pairs from the bulletin follow:

	March 31,1934	April 30,1934
Total stock on hand	16,518,046	16,965,423
Total shipments	9,523,978	8,435,272
Total production	9,544,974	8,882,649

Hosiery industry statistics for April as compiled by the Department of Commerce from 338 firms, 402 mills, follow:

	Knit	Shipments	Stocks
April	5,914,798	5,832,273	10,187,039
March	6,283,996	6,485,619	9,923,300

Production of knitted underwear declined slightly. Key statistics follow:

	Output	Shipments	New Orders
March,1934	1,935,000	1,756,000	2,961,000
April,1934	1,893,000	1,583,000	1,382,000

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Yarn Men Entertain

More than 120 hosiery and underwear manufacturers from all over the Middle West teed off at Knollwood Club, Lake Forest, Ill., on June 26 as guests of the Chicago Yarn Men's Circle at its thirteenth annual golf tournament.

"Dick" Dickson starred as usual as song leader at the banquet, and the gang gave him a lot of cooperation. M. Arnold Henderson, Standard-Coosa-Thatcher Co., president of the Circle, introduced the following dinner speakers: J. H. Brine and Earl Constantine, president and managing director respectively of the National Association of Hosiery Manufacturers; S. Ogawa, Attaché of the Japanese Embassy; and D. E. Douty, head of United States Testing Co., Inc.

Mr. Henderson also presented prizes as follows: The annual cup for low net score, won by Dick Frost, Allen A Co., who received a radio set as permanent trophy; R. A. Smith, Wilson Bros., who had low gross score, won a Gladstone bag; 20 runner-up players also received prizes.

C. M. Patterson, Jules Desurmont Worsted Co., is treasurer of the Circle, and C. Walter Seidel, representing E. Gerli Co., Kahn & Feldman, and Duffy Silk Co., is secretary.

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Harriman Mill Closed

Replying June 26 to an announcement June 25 by counsel for the Harriman (Tenn.) Hosiery Co., that "N.R.A. persecution" had forced the mill to close, Gen. Johnson said the N.R.A.'s terms for return of the Blue Eagle to that company were reasonable and that he had referred the case to the Department of Justice for action. The Harriman firm is accused of violating the labor clause of the recovery act. The Department of Justice announced June 28 that no prosecution was contemplated.

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Two Patents Valid

The decision of Judge J. E. Nields, U. S. Circuit Court, Delaware, upholding the validity of Roy E. Tilles' patent for an adjustable stocking, but denying contentions that the Artcraft Silk Hosiery Mills had infringed in making a "severable" stocking under the Morris Buchsbaum patent, was affirmed June 12 by the U. S. Circuit Court, Philadelphia, where it was brought on appeal. The patent rights of Mr. Tilles were defended by counsel for the Gotham Silk Hosiery Co. of which firm he is vice-president. The new ruling sustains Gotham's claim that Artcraft infringed on the Tilles patent but dismisses the Buchsbaum infringement claim.

The United States Circuit Court of Appeals for the Third Circuit rendered a decision on June 15 upholding the validity of U. S. Patent 1,713,628, covering an attachment for reversible reinforced selvage effects in full-fashioned hosiery. This important patent, owned by Textile Machine Works, was the basis for a suit by that company against Alfred Hofmann, Inc., for infringement.

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Highlights in Outerwear

The chief developments in the outerwear industry during the month were: First completion of the uniform cost system which was prepared for the Outerwear Code Authority by Stephen Gordon, accountant; second, the refusal of the N.R.A. to exempt 41 mills in Philadelphia from code hours; and, third, decision of 200 mills in New York to oppose further labor concessions.

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Industry Briefs

H. M. Waters, of National Exhibitors, is making plans for a hosiery and underwear show to be held at the Hotel New Yorker during the week of Aug. 6.

Announcement of the formation of a Knitwear Guild, as a division of the Fashion Originators Guild, with headquarters in New York, and comprising 11 manufacturers who originate knitted garment styles, was made June 20 by James M. Goldby, executive director.

The Southern Hosiery Manufacturers' association held its annual convention at Blowing Rock, N. C., July 5 and 6; the program arranged by T. C. Durham, secretary, provided for an attendance of 400.

The NRA announced June 30 that the underwear industry had been given exemption until Aug. 1 from the advanced dating provision of the code, this being necessary to meet seasonal production.

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Knitting Mill News

Clearfield (Pa.) Underwear Corp. plans opening a knitting mill at Eufaula, Ala. Machinery will be installed in buildings owned by the Alabama Knitting Mills, Inc.

Hollyvogue Knitting Mills, Los Angeles, Calif., knitted sportswear, has been incorporated. George Aftergood, who has been active in the knitting industry on the coast since 1924, is president, and Raymond Roberts, vice-president and treasurer. The plant at 2640 South Hill St. operates 15 knitting machines.

Highland Mfg. Co., Springfield, Mass., is moving from 44 Taylor St. to 33 Lyman St. to obtain larger quarters. Additional knitting machines will be installed.

Edward Heathcote Co., Inc., New York, N. Y., has started operations in a plant at Torrington, Conn., following installation of knitting equipment.

Lake City Hosiery Mill, Marion, N. C., is installing 40 additional knitting machines of the Banner type. Production will be increased 300 dozen pairs of hose per day and employment will be given for 25 more workers.

Idol Knitting Co., Inc., New York, N. Y., has been organized by M. Vize, 607 West 137th St., New York, and M. Hutchinson, 189 Clerk St., Jersey City, N. J., to operate a knitting mill in this vicinity.

Tiny Town Toga Co., New York, N. Y., has leased a plant at Troy, where production of knitted garments was started July 1.

Ruth Hosiery Mills, Durham, N. C., were sold June 25 by W. H. Hofler, trustee. Equipment included 45-gage textile full-fashioned machines, six leggers, three footers and other machinery.

Old Fort (N. C.) Hosiery Mill, reorganized as the **Monica Hosiery Mill,** began operations recently under the supervision of G. Curran, H. Curran and G. C. Stephens, formerly foreman of the McPar Hosiery Mills, Marion, N. C.

Spring City (Tenn.) Hosiery Mill has been bought as an investment by a group of eastern Tennessee business men.

J. A. Turner, Roanoke, Va., will establish a knitting mill at 330 West Campbell Ave., Roanoke.

Bear Brand Hosiery Co., Beaver Dam, Wis., is dismantling plant for purpose of removing machinery to another site, reported as probably the Kankakee (Ill.) plant of the company.

E. E. Paquette & Sons, hosiery manufacturers, 311 Dundas St., Woodstock, Ont., are planning to establish a full-fashioned mill at Pensacola, Fla.

TEXTILE WORLD'S

Processing Digest

THE Textile Processing Code Authority utilized a recent number of its news bulletin to good advantage when it hammered at suicidal price-cutting.

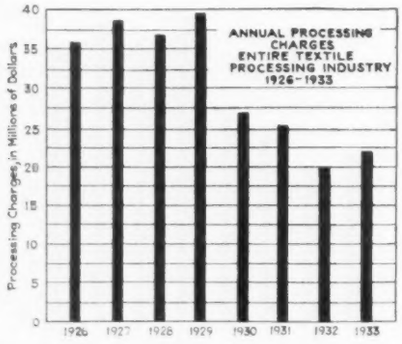
"When the textile industry is operating on a curtailed basis," it said, "there is not much business to go around among all the processors, including converters. The industry is then distinctly in a buyer's market. The tendency is to hammer prices or charges down to a point measurably below cost. We all know there is nothing sensible about it because when there is no business, reduction in prices does not create volume. It only forces competitors to meet the competition and results in further price-cutting. There is no bottom to the procedure."

Therefore the industry is urged "not to indulge in a general price-slashing campaign and not to be affected too much by every rumor heard and every statement made by a buyer."

This statement applies to every branch of the industry.—*Editor.*

Textile Processors' Charges Drop 43% from 1929 High

The volume of business of firms under the jurisdiction of the Textile Processing Code Authority dropped from an estimated total of $38,704,173 in 1929 to an actual total of $22,220,965 in 1933, according to data released late last month. Volume of business for the years 1926 to 1933 inclusive is shown



graphically in the accompanying chart. Figures for 1933 are based on the processing charges reported by 278 concerns, and do not include sales reported by 15 concerns or charges made by a group of 28 commission winders and warpers in Paterson, concerning whom there has been some question of code jurisdiction.

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Chemists at Play

Three sections of the American Association of Textile Chemists & Colorists held their annual outings on June 29. Members of the Rhode Island section, indulged in festivities and sports at the Warwick Country Club, West Warwick, R. I.; those of the New York Section, at the North Jersey Country Club, Paterson, N. J.; and those of the Piedmont Section at Blowing Rock, N. C.

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Haskell Elected Code Chairman

Gen. Wm. N. Haskell, who had been executive director of the code authority for the rayon and silk dyeing industry, on June 18 was elected chairman of the code authority for that industry. The election followed a meeting of the Institute of Dyers & Printers, the agency of the code authority; at which three new members were elected jointly to the board of trustees of the Institute and to the code authority as follows: Wm. Alexander, of Textile Dyeing & Printing Co., Robert Gaede, of the Gaede Silk Dyeing Co., and R. M. Gutekunst, of Helwig Silk Dyeing Co.

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Cotton Printers Confer On Curtailment Problems

Consideration of plans for curtailment continued a major activity in the printing industry. Meetings held in the middle of June established that out of 497 printing machines in the industry, the only objections to curtailment came from owners of 14 machines. Numerous later conferences were held with the aim of effecting 100% cooperation in the movement. At the end of June, progress was being made to this end, and the industry's leaders also took up the question of curtailment costs.

One curtailment plan calls for a single 40-hour shift basis against the present production maximum of 60 hours, which practically the entire industry agrees is excessive. It is pointed out, however, that the 40-hour schedule would add materially to production costs. Some estimated, for example, that in the percale section the new schedule would mean another cent per yard added to cost.

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Processors Amend Code, Ask Further Amendment

An amendment to the textile processing code which would permit the Code Authority for that industry to incur, and collect from members of the industry for, such reasonable expenses as may be approved by the Administrator was submitted to Deputy Administrator Blanchard June 19.

Other proposed amendments to the code, including a proposal to have the industry definition embrace silk in commission winding, warping, slashing or beaming of yarns, have been submitted to Deputy Administrator Blanchard. Another change would limit to 80-hours weekly the operation of machinery used in these operations in preparation for use on looms at least 16 in. wide.

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To Report Finishing Charges?

A plan for the reporting of finishing charges was included in a supplementary code for the finishing branch of the cotton textile industry which was considered at a hearing in Washington, June 11. The proposal was that all finishing corporations and mill finishers should report to the National Association of Finishers of Textile Fabrics "all finishing charges per yard on competitive fabrics as determined by the subcommittee on finishing, including charges for all extras, put-up etc., made by or credits allowed to its finishing department, and the same information to be distributed to the members of the finishing industry."

Assistant Deputy Administrator A. H. Thurston, in charge of the hearing, said that in view of the Administration's recently announced policy it might be necessary for the proponents in order to gain approval to change this provision so that the information would be available to anyone interested.

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Silk and Rayon Finishing Code Modified

Two interesting developments of the month in the rayon and silk dyeing and printing industry were: The approval by National Recovery Administrator Johnson of several amendments to the

industry's code, and the endorsement by the Printers Committee of the industry of the policies followed by the Design Registration Bureau of the National Federation of Textiles.

The amendments approved by Gen. Johnson provided for the posting of a printed schedule of all minimum wages, maximum working hours, and working conditions as may be directed by the code authority; several unfair practices also are added to the code.

Members of the committee representing the printers conferred with Robert Schey, chairman of the Federation's design registration bureau, and were informed of the policy provisions as to classification of designs, especially in the staple or open roller class. They approved of the policy and would so report to their Code Authority, the members told Mr. Schey.

Robert L. Houston, NRA, issued a clarifying ruling whereby plants doing several classes of work pay the highest minimum for any one class.

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Sodium Hexametaphosphate in Textile Processing

Following the announcement last fall of a new fellowship at Mellon Institute for the investigation of the properties and uses of molecularly dehydrated phosphates, Calgon, Inc., Pittsburgh, Pa., has recently introduced one of these compounds—sodium hexametaphosphate—to the textile industry. Due to its property of dissolving calcium and magnesium soaps in water or alkaline solutions, this chemical which is being marketed under the trade name "Calgon," is recommended as an addition to baths employed in scouring, dyeing, rinsing, etc., of all textiles. It is emphasized by the manufacturers that this compound is not intended to replace soaps or other chemicals used in textile processing, but is to be employed in conjunction with them in order to prevent the faults due to the presence of calcium or magnesium in the various baths.

Some of the processes in which Calgon already has been applied include warp sizing, wool scouring, silk degumming, dyeing, and finishing. Among the advantages cited for this material are that it facilitates rinsing, promotes even bleaching and dyeing and results in brighter and faster shades, eliminates all danger of lime and soap spots, produces a softer and more desirable finish, and permits a reduction in amount of detergent ordinarily employed. It is stated that in most instances the use of Calgon is justified even when zeolite-softened water is available. Calgon is supplied either in flake or solid form, from which stock solutions ordinarily containing 2½ lb. of Calgon to 1 gal. of water are prepared. Depending on the particular process in which it is employed and on the hardness of the water available, from ½ to 1 pint of the stock solution is usually necessary to each 100 gal. of rinse water, dye liquor, etc.

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New Dyestuffs

General Dyestuff Corp. announces the following new products: Oxydiaminogen OBA, a developed black which produces a bloomy black with Developer MT and a more greenish black which leaves acetate unstained with Developer ZA New; fastness to light is fairly good; to washing very good; and the fastness to rubbing, ironing, acid, and alkali excellent.

Diazo Rubine BA, a developed color which, with Beta Naphtol, produces full claret shades which discharge to a very good white with Rongalite. Dyeings of good fastness to washing; moderate fastness to light; and excellent to rubbing, ironing, alkali, and acid.

Sulphon Orange GA, an acid dyestuff which produces on wool a bright orange of very good fastness to washing, water, and salt water. It is a good union color and is also well adapted for silk.

Alizarine Direct Blue ARA, a new acid-dyeing Alizarine color which produces on wool bright blue shades of very good fastness to light, perspiration, decatizing and hot pressing. Effect threads of cotton or acetate are not stained.

•

Coal-Tar Dye Statistics

Domestic production of coal-tar dyestuffs for 1933 was 100,952,178 lb., according to information released last month by the U. S. Tariff Commission. Sales totaled 98,228,671 lb. valued at $43,095,630, exceeding those for 1932 by more than 30% in quantity, and approaching the record sales in 1929 of 106,070,887 lb. valued at $45,842,130. Sales of unclassified and special dyes totaled 7,725,254 lb. valued at $7,787,901, a large increase being noted in dyes for cellulose acetate.

•

Engravers Ask Changes

Customer trends toward placing rush orders with textile engravers were discussed at length at a hearing in Washington June 14, on proposed amendments to the code of the textile print roller engraving industry. Attention centered on provision to limit work days to Monday to Friday and limit 2-shifts; and prohibition against engraving of any design not properly registered.

Finishing Plant News

Thomaston (Ga.) Bleachery has begun construction of a new two-story and basement addition, 100x96 ft., for which general contract was let to D. H. Butts, Jr., Thomaston. New unit will be used to house shrinking machinery and for storage. Cost estimated at $40,000. Robert & Co., Atlanta, Ga., are architects and engineers.

Pepperell Mfg. Co., Lindale, Ga., has superstructure under way on new three-story and basement addition, 50x325 ft., for which general contract was awarded to the Batson-Cook Co., West Point, Ga. The new unit will be used primarily as a dyehouse. It is estimated to cost $100,000.

Bloomfield Textile Engravers' Corp., Bloomfield, N. J., has been organized with capital of $100,000 by Saul Z. Zucker, Newark, N. J., and associates, to operate a local textile print works.

Apex-Oriental Corp., Paterson, N. J., will discontinue the printing activities of its Oriental division. The equipment involves seven printing machines.

McLean Piece Dye Works, Paterson, N. J., recently organized with capital of $60,000, has taken over former local mill of the **Keystone Piece Dye Works,** East 43d St. Improvements will be made in property. Mario Nazzaro is president; Donald Garry, vice-president; and Benjamin Goldfarb, treasurer.

Advance Piece Dye Works, Rutherford, N. J., plan rebuilding of portion of warehouse unit at mill, recently damaged by fire, with loss of about $13,000.

Drapex Piece Dye Works, Inc., 21 East 4th St., New York, N. Y., has leased two-story building at 26-30 Delevan St., Brooklyn, N. Y., to occupy for new plant unit.

United States Finishing Co., New York, and its subsidiary, the **Queen Dyeing Co.,** has filed a petition under the National Corporate Reorganization Act and the U. S. District Court at Providence has authorized continuance of the business under present officers pending the reorganization plan. The company states that it expects to pay all merchandise creditors in full. The move is made in order to qualify for a loan from the Reconstruction Finance Corp. to be used as working capital. Further court hearing is set for July 19 at Providence.

Dunean Mills, Greeneville, S. C., has installed a Proctor & Schwartz continuous drying machine which is used in connection with rayon tinting.

TEXTILE WORLD'S

Engineering Digest

NEWS of the completion of the rough draft of the revised "Cotton Mills Safe Practices Pamphlets" is welcome. For many months textile men thoroughly conversant with the specific problems of their industry have given much of their time and energy to this job and consequently the new report will be featured by practicality. After a final going-over the pamphlet will be issued shortly under the auspices of the National Safety Council.

To give credit where credit is due, the following, representing both the textile section of the National Safety Council and the safety committee of the National Association of Cotton Manufacturers, have carried the burden of this important work: Charles Forsaith, superintendent, Nashua (N. H.) Mfg. Co.; J. Frank Morrissey, superintendent, Interlaken Mills, Harris, R. I.; Robert J. McConnell, superintendent, Pequot Mills, Salem, Mass.—*Editor.*

What a Record!

In 1933 the Hartford (Conn.) Electric Light Co. reduced rates to its customers, at the same time improving service; maintained its full force of employees at the 1929 level and without reductions in pay; paid full dividends to its stockholders and set aside a moderate surplus.

With the above record, it is small wonder that the company received the annual public utility award of the Charles A. Coffin Foundation, established by the General Electric Co. The award, made on June 6, comprises the Charles A. Coffin medal, a certificate, and a check for $1,000 to be deposited in the treasury of the utility company's Employees' Welfare Association.

In addition to clever merchandising, the Hartford company listed sixteen pioneer accomplishments in 1933 in which it led the electric utility industry of the country.

•

Warped Castings

It often happens that a casting which has been properly machined does not stay in place. This condition causes untold trouble in some types of machinery, especially parts made to carry right-angle studs, etc.

The difficulty is caused by *unseasoned* castings. More than likely, the casting was taken into the machine shop the minute received, machined, and put in place. This procedure does not allow the natural strains in the casting to work themselves into a state of repose. When the scale (which is the first part to cool) is removed, it allows the inner sections of iron, which are in a state of non-repose, to bend or twist in an effort to relieve the strains. Such being the case, the best practice is to take a rough cut, just under the scale, on all surfaces that are to be machined, and then lay the casting aside for several days. It may then be finish-machined and will hold its shape.

On very particular work, such as card drums, it is a common practice to stand the castings outdoors for several months between cuts, sometimes taking two or three roughing cuts and seasoning for months between each cut.

P. S. HUNTLEY

•

Metal Coats Give Service

The process of spraying molten metal, described in TEXTILE WORLD, November, 1933, is finding increasing application in the textile industry, particularly in coating dry cans, lining tanks, etc., and in building up worn parts.

Writing in the April issue of *The Metalizer*, Edward McCrady, president of the Greenville (S. C.) Steel and Foundry Co., gives details on the number of coats his company has found advisable:

Starch Mixers—4 coats zinc. Service to date, 18 months.

Size Kettles—4 coats tin. Service to date, 18 months.

Dry Cans—4 coats tin. Service to date, 12 months.

Sulphuric Acid Washer Tanks—2 coats lead. Service to date, 15 months.

Dye Kettles—6 coats nickel-silver. Service to date, 16 months.

Another item in the same publication describes the building-up of small motor spindles, which had become worn, at a cost considerably less than when employing the usual methods.

•

Capacitator Allows New Motor Installations

Generating its own power with a 500-kw., three-phase, 230-volt, General Electric turbine-generator having a full-load rating of 1500 amp., the Wyandotte Worsted Co., Pittsfield, Mass., plant, was faced with a condition whereby the plant load was running 400 to 450 kw. at a power factor varying between 65 and 75%. This meant a peak load of 1700 amp., which was considerably over the full-load rating of the turbine-generator.

To remedy the situation, the mill installed a 240-kva., 4000-volt, General Electric capacitator. This resulted in a reduction of the current from 1700 to 1300 amp. and an increase in the power factor from 67 to 88%. Conditions on the excitor were also improved. Additional motors can now be added to the circuits without overloading the turbine-generator.

•

Pipe Standards Approved

After seven years of work, the American Standards Association, 29 West 39th St., New York, as reported in the May issue of *Industrial Standardization*, recently approved nine standards for wrought-iron and steel pipes. Two of these have been approved as American Standards and seven as American Tentative Standards. One of the advantages of standardization is that the new schedules will eliminate many of the little-used, intervening weights of pipe.

•

Pros and Cons Of Buying Power

The many factors that must be taken into consideration before a decision is made whether power should be purchased or generated are analyzed by David Moffat Myers, in an article appearing in *Factory Management and Maintenance*. Mr. Myers states, in brief, that power should be generated under the following conditions:

1. It pays to generate power in the smallest to the largest establishment when all of the exhaust steam from the power units can be utilized for heating or for process work. Exhaust steam can now be delivered at high pressures (100 to 300 lb.) from power units served by high-pressure boilers.

2. It is usually cheaper to make than to buy power when the steam heating or process load is relatively large in comparison to the power load. Thus if one-half of the engine or turbine exhaust be utilized to replace direct steam from the boilers, the fuel cost of power is almost halved. This applies to plants of all sizes.

3. It may pay to generate power when there is a moderate to large power demand continued for a good part of the 24 hours, even when there is no use for exhaust steam. Under these conditions the over-

head charge is small and a power plant of simple design can be operated very economically.

4. Another condition favorable to generating power may exist when a considerable boiler plant must in any event be maintained for heating or process work. It may here be possible to install an economical power unit without adding boiler capacity, so that there is no added overhead charge except for the power unit itself.

Mr. Myers sums up the other side of the case as follows:

1. It pays to buy power—if the rates are right—in plants of small or of moderate power demand where there is little or no need for heating or process steam.

2. It pays to buy power in plants even where power can be made more cheaply than purchased under certain special circumstances. For example, where to make power economically would require a considerable capital investment for equipment or improvements, and also where, at the same time, the limited capital available could be turned over much more rapidly in improving the production end of the business.

3. It may pay to buy power in plants of large power consumption where a highly developed superpower system makes the cost of purchased power almost as low as that at which it could be generated on the owner's property.

4. It may pay to buy power in plants of any size where the owner's business policies are unsettled, or where his business may be growing so rapidly that he does not desire to risk building a power plant that in a short time might be unsuited to his needs.

5. It may pay to buy part of the power requirements. There are two general sets of conditions favorable to this solution. First, there is the plant where all the exhaust steam is used, but where the by-product power is not sufficient to meet demands. Here the best economy may be served by purchasing the balance required. Second, there is the plant where the exhaust steam can be used in the heating months only. Purchase of power at suitable rates in the warm months may result in better economy than operating non-condensing engines, or turbines, or diesel units.

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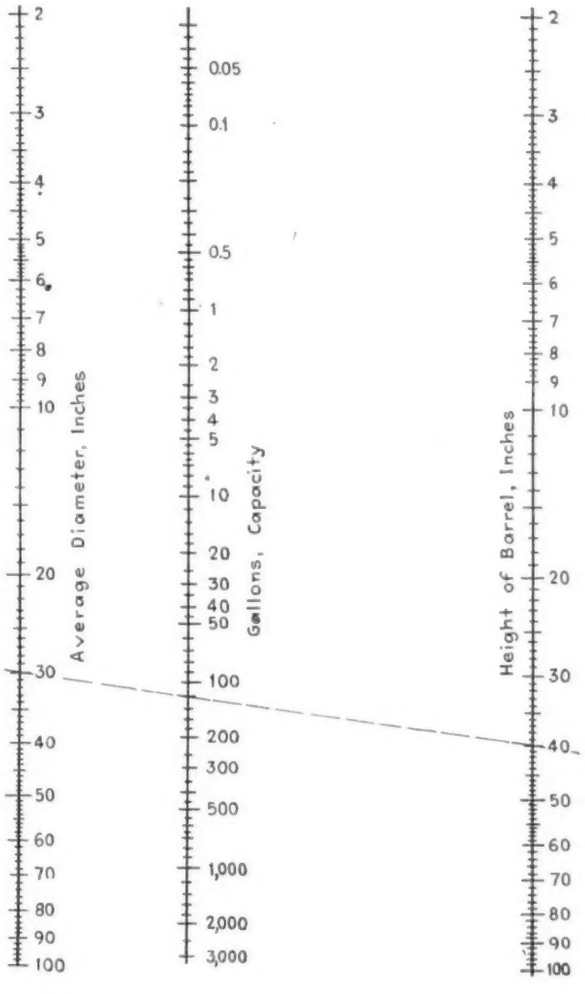
Nomograph for Gallon Capacity of Tanks

The capacity in gallons of any cylindrical container, such as a barrel, may be quickly determined by use of the accompanying chart or nomograph. It will also tell the number of gallons in a container at any level. All that it is necessary to do is to determine the average diameter of the container in inches and find this figure in the left-hand column. The height of the container or liquid is next determined and noted in the right-hand column. The number of gallons can be read in the center column where it is intersected by a straight line connecting the two determined points.



Engineering Mill News

Rhode Island Worsted Co., Stafford Springs, Conn., has sold 19 dwellings in the borough, having already presented to the municipality the improved streets, sidewalks, curbing and sewers in the company village.

Millbury (Mass.) Woolen Co. is installing a new filtration plant at a cost of $10,000. Harry F. Kimball, 101 Milk St., Boston, Mass., is the engineer.

Mooresville (N. C.) Cotton Mills have completed the work of re-covering and re-painting the plant No. 3 inside.

Cannon Mills, Plant No. 4, Kannapolis, N. C., has replaced hand firing with Detroit stokers. Similar installations have been made at **Amazon Cotton Mills,** Thomasville, N. C., and **Sellers Mfg. Co.,** Saxapahaw, N. C.

Lorraine Mfg. Co., Westerly, R. I., has sold at auction its property in Pawcatuck, Conn., across the state line, consisting of 32 dwelling houses and nine parcels of unimproved land. Samuel T. Freeman, of Philadelphia, was the auctioneer.

Camperdown Co., Inc., Greenville, S. C., has replaced boiler unit with new one-story power house, 40x20 ft., costing $4,500. Fiske-Carter Co., Greenville, S. C., were the contractors.

Judson Mills, Greenville, S. C., is repainting approximately 700 houses, inside and out.

Ware Shoals (S. C.) Mfg. Co. has awarded the contract for the erection of 250 homes for operatives.

Dominion Textile Co., Ltd., plant at Magog, Que., is extending its steam generating facilities to provide additional steam for manufacturing purposes. Work is expected to be finished in August.

Paris Wincey Mills, Ltd., Paris, Ont., are preparing to increase the boiler capacity in their mills there.

Rock Hill (S. C.) Printing & Finishing Co. completed its annual shutdown for repairs, cleaning and inspection during the first week of July.

James C. Self, president of Greenwood, Matthews and Ninety-Six Cotton Mills, of South Carolina, recently signed a contract to buy enough power from the proposed Buzzard's Roost power project to make it self-liquidating.

QUOTATIONS

At close of business, July 2, 1934

Prices cover average qualities unless otherwise stated.

Cotton Goods

	*July 2	*June 1	1933 July 1
PRINT CLOTHS			
27 -in., 64x60, 7.60	4⅛	4⅛	4⅛
38½-in., 64x60, 5.35	6⅛	6⅛	6⅛
39 -in., 68x72, 4.75	7⅛	7¼	7⅛
39 -in., 72x76, 4.25	8¼	8⅛	8
39 -in., 80x80, 4.00	8¼	8¼	8½
BROWN SHEETINGS			
36-in., 56x60, 4.00	7⅛	7⅜	7
36-in., 48x48, 5.00	5¼	5⅞	5⅜
37-in., 48x48, 4.00	7⅛	6¼	6¼
MISCELLANEOUS			
Drills 37-in., 3 yd.	9⅛	9⅛	8¼
Denims, 2.20	15⅜	15⅜	12⅛
Tickings, 8 oz.	18⅜	18	15⅛
Standard prints	7¼	7¼	6⅛

*Tax included.

Cotton Waste

Peeler comber	12.25
Peeler strip	11.25
White spooler (single)	6.50
Linters (Mill Run Average)	5.50

Cotton Prices

Spot Cotton at:	July 2	June 1	For Month High	For Month Low	1933 July 1
New York	12.10	11.80	12.45	11.80	10.30
New Orleans	12.07	11.76	12.36	11.76	10.20
Liverpool	6.70	6.26	6.84	6.26	6.45

FLUCTUATIONS OF FUTURES

	Closed July 2	For Month High	For Month Low	Closed June 1	Net Change
Aug	11.97	12.30	11.72	11.72	+0.25
Sept	12.04	12.38	11.79	11.79	+0.25
Oct	12.11	12.48	11.87	11.87	+0.24
Nov	12.18	12.54	11.93	11.93	+0.25
Dec	12.26	12.61	11.99	11.99	+0.27
Jan	12.31	12.65	12.04	12.04	+0.27
March	12.39	12.76	12.14	12.14	+0.25
May	12.50	12.87	12.23	12.23	+0.27

AVERAGE PRICE JUNE-JULY SHIPMENT HARD WESTERN COTTON

	F.o.b. New England Middling	St. Middling
1⅛-in.	15.11	15.86
1 5/16-in.	15.86	16.86
1¼-in.	18.11	20.11

Based on October 12.11.

FOREIGN COTTONS

Alexandria Exchange, July 2

July, Sak	14.69
August Uppers	12.28
Shipment c.i.f. Boston (Tariff not included)	
Medium Sak	28.10
Medium Uppers	23.00
(By Anderson, Clayton & Co.)	
India Rough, Calcutta Camilla	11.00
China Tientsin No. 1	12.85

Quotations on cotton cloth and cotton yarn as given on this page include the cotton processing tax. Where figures for dates earlier than Aug. 1, 1933, are given for comparison, such figures of course do not include this tax.

Cotton Yarn (Nominal)

(Tax Added)

CARDED (Average Quality)

Double Carded 2c—4c., higher according to quality

SINGLE SKEINS OF TUBES (Warp Twist)

4s to 8s	$0.26	20s	$0.29½
10s	.26½	24s	.31½
12s	.27	26s	.32½
16s	.28	30s	.34½

TWO-PLY SKEINS AND TUBES

8s-2	$0.26½	20s-2	$0.30
10s-2	.27	4s-2	.32
14s-2	.27½	30s-2	.35
16s-2	.28½	40s-2	.41

SINGLE WARPS

10s	$0.27	20s	$0.30
14s	.28	24s	.32
16s	.28½	30s	.35

TWO-PLY WARPS

8s-2	$0.27	20s-2	$0.30½
10s-2	.27½	24s-2	.32½
14s-2	.28½	30s-2	.35½
16s-2	.29	40s-2	.45½

HOSIERY CONES (Frame Spun)

8s	$0.26½	18s	$0.29
10s	.27	20s	.30
12s	.27½	22s	.31
14s	.28	24s	.32
16s	.28½	26s	.33

COMBED PEELER (Average Quality)
TWO-PLY—(Knitting Twist) Cones

20s-2	$0.37	50s-2	$0.51½
30s-2	.42	60s-2	.57½
40s-2	.47	80s-2	.77

WARPS, SKEINS AND CONES
TWO-PLY—(Warp Twist)

20s-2	$0.37½	50s-2	$0.52½
30s-2	.42½	60s-2	.58½
36s-2	.45½	70s-2	.68½
40s-2	.47½	80s-2	.78½

SINGLES

14s	$0.34	38s	$0.45½
20s	.36½	40s	.46½
28s	.40½	50s	.51½
30s	.41½	60s	.57½

MERCERIZED CONES—(Combed, Ungassed)

30s-2	$0.50	60s-2	$0.69
40s-2	.56	80s-2	.97

Raw Silk

Prices Nominal

	13/15 White	20/22 White	20/22 Yellow
Special Grand, 85%	$1.42	$1.24	$1.18
Grand XX, 83%	1.29	1.22	1.16
Special Crack, 81%	1.22	1.20	1.15
Crack XX, 78%	1.19	1.18	1.12
Extra, Extra, 73%	1.14	1.15	1.10
Best Extra, 68%	1.11	.....	.....

RAW SILK EXCHANGE

	July 2	June 1	For Month High	For Month Low	Net Change
Aug	1.12	1.21½	1.23	1.13	—0.11½
Sept	1.15	1.22½	1.24	1.15½	—0.07½
Oct	1.15½	1.22½	1.24	1.15½	—0.07
Nov	1.16	1.22½	1.24	1.16	—0.06½
Dec	1.16½	1.22	1.24	1.16½	—0.05½
Jan	1.16½	1.22	1.24½	1.16½	—0.05½
Feb.	1.16½	1.22	....	....	—0.05½

Silk Yarns

Hosiery tram 5thd Japan, 85%	$2.10
Hosiery tram, 5thd. crack XX, 78%	1.85
60/2 spun silk	2.95

RAYON WASTE

Thread (for garnetting)	$0.17

Wool

OHIO, PENNSYLVANIA, ETC. (GREASE)

Fine delne	$0.30 –$0.32	¾ blood	$0.32 –$0.33
Fine clthg	.25 – .26	½ blood	.31 – .32
¼ blood	.30 – .31		

TEXAS AND CALIFORNIA (CLEAN)

Texas, 12 months	$0.80 –$0.81
California, Northern	.70 – .75

MONTANA, IDAHO, WYOMING (CLEAN)

Staple fine	$0.83 –$0.85
Staple ½ bld	.81 – .82
Fine and fine medium (original bag)	.79 – .81
¾ blood	.76 – .78
½ blood	.70 – .72

EASTERN SCOURED PULLINGS

A.A	$0.85 –$0.90	B-Super	$0.66 –$0.72
A-Super	.75 – .80	C-Super	.60 – .62

CARPET WOOL (Nominal)

Aleppo (clean)	$0.20 –$0.23
Sining	.13 – .17
China filling (clean)	.12 – .16

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$1.08 –$1.10
Half-blood (60-62s)	1.01 – 1.03
Aver. ¾ blood (56s)	.90 .93
½ blood (50s)	.83 – .85

NEW YORK TOP FUTURES

	Closed July 2	For Month High	For Month Low	Closed June 1
Aug	88.20	92.10	85.70	88.20
Sept	88.40	92.30	86.00	88.60
Oct	88.60	92.50	86.40	88.80
Nov	88.80	92.70	86.70	89.50
Jan	89.20	93.10	87.40	90.00

TOPS—BRADFORD ENG. (July 2)

Fine (64s)	32½d	¾ bld. (56s)	22½d
½ bld. (60s)	29½d	¼ bld. (50s)	17d

NOILS—BOSTON

Fine	$0.51 –$0.53	¾ bld	$0.44 –$0.46
Half bld	.48 – .50	¼ bld	.40 – .43

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 44s	$1.10 –$1.15	2-36s 58s	$1.45 $1.55
2-30s 46s	1.20 – 1.25	2-40s 60s	1.50 1.57½
2-30s mixes	1.55 – 1.60	2-50s 64s	1.65 – 1.75

ENGLISH SYSTEM KNITTING

2-20s 44s	1.07½ 1.10	2-20s 60s	1.30 – 1.35
2-20s 50s	1.10 – 1.15	2-20s 64s	1.37 – 1.40

FRENCH SYSTEM

1-26s 64s	$1.37½ $1.42½	2-40s (4s Zephyrs	$1.55 –$1.60
1-30s 64s warp	1.55 – 1.60	2-50s 66s	1.75 – 1.80

Domestic Rayon (Skeins)

VISCOSE PROCESS

Denier	Filament	Price	Denier	Filament	Price
50	14	$1.15	150	24–40	$0.55
75	30	.90	150	60	.60
100	40	.75	300	44	.45
125	36	.62			

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Denier	First Qual.
75	$0.95 –$1.00	150	$0.60
100	.80 – .85	175	.60

ACETATE PROCESS

Denier	Price	Denier	Price
45	$1.20	100	$0.85 –$0.90
55–65	1.15	120	.70 – .80
75	1.00	150	.65 – .75

CUPRAMMONIUM PROCESS (TWISTED)

Denier	Filament	Price	Denier	Filament	Price
30	24	$1.50	100	75	$0.80–$0.90
75	60	.95–$1.05	150	112	.65– .75